

AD _____

Award Number: DAMD17-96-1-6325

TITLE: A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

PRINCIPAL INVESTIGATOR: Gwen K. Wyatt, Ph.D., RN
Barbara Given, Ph.D., RN, FAAN
Charles Given, Ph.D.

CONTRACTING ORGANIZATION: Michigan State University
East Lansing, Michigan 48824-1046

REPORT DATE: October 2000

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release; Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

20010419 071

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE October 2000	3. REPORT TYPE AND DATES COVERED Annual (15 Sep 99 - 14 Sep 00)	
4. TITLE AND SUBTITLE A Subacute Care Intervention for Short-Stay Breast Cancer Surgery			5. FUNDING NUMBERS DAMD17-96-1-6325	
6. AUTHOR(S) Gwen K. Wyatt, Ph.D., RN Barbara Given, Ph.D., RN, FAAN Charles Given, Ph.D.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Michigan State University East Lansing, Michigan 48824-1046 E-MAIL: gwyatt@msu.edu			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES This report contains colored photos				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited				12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 Words) The purpose of this study is to add to the scientific basis for providing subacute care in the home, by testing the effects of a post-operative nursing intervention designed to facilitate quality of life and physical/psychological well-being after diagnosis and surgery for breast cancer. A randomized clinical trial with repeated measures is examining the effects of the intervention. The intervention participants (n=100) receive the targeted subacute care protocol in the home from a study nurse within the first 14 post-operative days, control A participants (n=50) receive surgeon-ordered agency home nursing care, and the control B participants (n=50) receive no post-surgical nursing care. We hypothesize that, compared to the control participants, recipients of the intervention will report higher quality of life, improved surgical recovery and self-care knowledge, higher physical functioning, lower anxiety levels, fewer physical symptoms, less frequent use of health services, and lower out-of-pocket health care expenses. Trends to date indicate that the intervention women are being discharged sooner, using fewer health services during the first four weeks post-discharge, and receiving less than half the number of nurse visits, when compared to controls, and yet are achieving comparable or better physical, emotional, and financial outcomes. Such findings can contribute to policy on these care and cost issues.				
14. SUBJECT TERMS Breast Cancer, Quality of Life, Subacute Care, Short-Stay Surgery, Improved Outcomes, Cost Containment, Return to Productivity				15. NUMBER OF PAGES 84
				16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

TABLE OF CONTENTS

REPORT

Cover	i
SF298	ii
Table of Contents	iii
Introduction	1
Body	2
Key Research Accomplishments and Trends	20
Reportable Outcomes	21
Conclusions	22
References	24
Tables	25

APPENDICES

Publications	Appendix A
Design	Appendix B
Grant Productivity	Appendix C
Grant Abstracts	Appendix D

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

INTRODUCTION

I. SUBJECT OF RESEARCH

The **subject** of this grant is the provision of a cost effective, highly targeted, randomized clinical trial (intervention) which provides two weeks of post-surgical nursing care in the home for women following short-stay surgery for breast cancer.

II. PURPOSE OF RESEARCH

This study is designed to address the well-documented, but unmet, physical and psychological needs of women undergoing surgery for breast cancer.^{1,2,3,4} The **purpose** of this study is to support women during the immediate post-operative phase in order to facilitate return to pre-surgical quality of life and improved physical and psychological well-being at a reasonable cost following short-stay surgery for breast cancer.

III. SCOPE OF RESEARCH

The **scope** of this study is to test the impact of a short-term (14 days post-surgical), subacute care intervention for women (21 years of age and older) who have undergone short-stay surgery (48-hours or less) for breast cancer. When compared to conventional post-surgical care, the subacute care (in-home intervention) is targeted to help women attain optimal recovery during their immediate post-surgical phase and assist them in regaining their pre-surgical health status prior to initiating adjuvant therapy. The broader impact of this study may include contributions to policy on length of stay for breast cancer surgery, dose of post-surgical nursing care needed, the protocol of care that is most effective for desirable outcomes, and standardizing customary costs for care.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

BODY

I. STATEMENT OF WORK (As Submitted with Original Proposal)

YEAR	TASK	TIME PERIOD	ACTIVITIES
I	Task 1	Pre-funding Period	Orient physicians to study at all sites.
I	Task 2	Months 1 - 6	Clear IRBs of all agencies. Recruit and train research personnel.
I	Task 3	Months 7 -12	Begin participant recruitment, intervention, and data collection. (n=25)
II	Task 4	Months 13 - 18	Continue participant recruitment, intervention, and data collection. Monitor accrual. (n=50)
II	Task 5	Months 19 - 24	Continue participant recruitment, intervention, and data collection. Monitor accrual. (n=50)
III	Task 6	Months 25 - 30	Continue participant recruitment, intervention, and data collection. Begin data entry. (n=50)
III	Task 7	Months 31 - 36	Continuing recruitment, intervention, and data collection. Accelerate recruitment if necessary to account for any participants who do not complete intervention. (n=50)
IV	Task 8	Months 37 - 42	Continue recruitment if needed (n=25). Complete data entry on computer. Begin preliminary data analysis.
IV	Task 9	Months 43 - 48	Complete statistical analysis. Prepare research reports. Prepare manuscript for publication.

A. Tasks - Years I, II, and III

See Years I, II, and III Annual Reports for details on Tasks 1-7.

B. Tasks - Year IV

1. Task 8, Months 37-42, Continue recruitment if needed (n=25). Complete data entry on computer. Begin preliminary data analysis. A total of 28 participants were recruited into the study during this time period. This number includes 21 participants from the Lansing, MI sites, 5 from William Beaumont Hospital in Troy, MI, 1 from St. Joseph Mercy Oakland Hospital in Pontiac, MI, and 1 from Hayes Green Beach Hospital in Charlotte, MI.

Data entry is ongoing. All completed cases have been entered into our computerized system, and preliminary analyses have been conducted in preparation for the Year IV Annual Report.

2. Task 9, Months 43-48, Complete statistical analysis. Prepare research reports. Prepare manuscript for publication. A no-cost extension was granted in May, 2000 that will allow the study to continue through September 14, 2001. While preliminary statistical analyses have been completed on the projected n=200, we are continuing to accrue additional subjects and will report on the total sample in the final report that will be submitted September, 2001.

Preparation of research reports has been ongoing for various professional presentations as listed in the Reportable Outcomes section, page 20. One manuscript was published during Year IV of the grant (May, 2000), detailing the protocol of the study. Please see **Appendix A.**

The total number of participants recruited for Year IV of the study is 32. The total number of participants accrued to date is n=221. Interviews have been completed on n=218, so analysis for this report will be based on this sample size (n=218). We credit our highly skilled nurse recruiters and nurse interveners with our successful participant retention record.

C. Continued Implementation of Policies and Procedures

Policies and procedures for the four components of our study (recruitment, intervention, interview, and chart audit) continue to be implemented as originally planned with minor adjustments made as situations arise. The guidelines developed for **recruitment** include a position description for recruiters, randomization procedure instructions, detailed instructions for the recruitment of patients and obtaining consent, pre-test questionnaires, agency consent forms, communications guidelines for interactions with agencies and patients, instructions for computerized entry of recruitment data, study brochure, and recruitment resources. **Intervention** guidelines include the structured protocol, a position description for intervention nurses, information regarding confidentiality, universal precaution guidelines, health care referral policy, and attrition information. The **interview** guidelines include an interviewer training module, guidelines for conducting interviews, instructions for completing paper documentation (forms and letters), and instructions for the Computerized Interview Version 3 (Ci3) data entry program. The

guidelines developed for the **chart audit** provide instructions on obtaining diagnosis and treatment information from patients' medical charts. Detailed protocols have been developed for all components of the study, and quality assurance is conducted routinely on recruitment, intervention, interview, and chart audit materials. (See Annual Reports for Years I and II to obtain detailed information on policies, procedures, and protocols).

II. EXPERIMENTAL METHODS

A. Design (please see **Appendix B** for diagram of design)

A randomized clinical trial with repeated measures is examining the effects of a short term intervention consisting of the combination of a telephone and in-home intervention. The intervention lasts 14 days and focuses on physical and psychological subacute care following short-stay breast cancer surgery. Participants are randomly assigned to the intervention or control group prior to surgery. The control group is further subdivided into **control A** and **control B** depending on whether or not agency home care is ordered by their surgeon. The **intervention** group receives the in-home study protocol; the **control A** group receives agency nursing care ordered by their surgeon; and the **control B** group receives no nursing care. All three groups receive conventional post-surgical medical care.

Data are collected on all participants at 3 times over a period of 4 months (at recruitment, four weeks post-surgery, and four months post-surgery). Data collection at recruitment and four weeks post-surgery are through a combination of self-administered written questionnaires and telephone interviews with the women. The rationale for this schedule is to obtain baseline data and to compare this data with data collected after the intervention, which allows us to assess the immediate efficacy of the intervention. Data collection at four months post-surgery is in the form of a medical chart audit. Information is gathered on cancer stage, incidence of infection, seroma formation, additional surgeries, and other medical concerns that develop after initial breast cancer surgery. The four month time period allows us to see the trajectory of post-surgical follow-up care.

B. Sample

Participants are women 21 years of age and older, able to speak and read English, and receiving short-stay surgery (48 hours or less) as a first treatment for breast cancer. For this study, surgery refers to mastectomy with lymph node dissection, mastectomy without lymph node dissection, or lumpectomy with lymph node dissection. Exclusionary criteria are pregnancy, in-situ tumors, reconstructive surgery concurrent with removal of cancerous tissue, an acute episode of medically diagnosed mental illness at the time of current breast cancer diagnosis, and a home address of more than 40 miles away from the surgeon's office. Most women are stage I or II since women with these stages generally undergo surgery as their initial treatment. English speaking skills are necessary to ensure that directions related to the data instruments and protocol teaching are understood.

C. Recruitment

Fifteen surgeons are currently providing potential recruits to the study. Now that the projected sample size ($n=200$) has been met, we are over-sampling to enhance our statistical power. Recruitment procedures continue as stated in the prior Annual Reports. Women are initially introduced to the study by a brochure written in lay language. This is followed up by a nurse recruiter who gives the women detailed information about the study (Please see Year I and II Annual Reports for details).

D. Accrual

The accrual of participants has been successful despite the short window of time between diagnosis and surgery. Of the 282 women who have been contacted about participating in the study, 221 women (78%) have been successfully accrued. Our attrition rate is $n=0$ with one anomaly where the post-test data was not obtainable due to inability to contact the participant. In addition, two participants consented but became ineligible due to a change in their status (e.g., primary site found to be in lungs, so breast surgery was postponed). We attribute the success of accrual to the fact that all study recruiters are registered nurses who are well informed about breast cancer, the surgical process, and other health issues about which women may have concerns. Recruiters are also instructed to consider the psycho-social issues facing cancer patients and employ empathy and active listening during recruitment.

E. Randomization

Once accrued and baseline data are collected, women are randomly assigned to the intervention or control groups. The recruiter telephones the campus research office, where a research assistant selects the next randomization card for that community site. The research assistant provides the recruiter (intervention group only) with the name of the nurse intervener assigned to the participant.

Once randomization is complete, the surgical office staff is informed of the woman's assignment to a study group (i.e., Intervention or Control). At this pre-surgical point, the office staff may or may not order agency nursing care for the control participants. At our Detroit area sites, agency nursing care is never ordered for women; whereas, at our Lansing sites, agency nursing care is ordered for the majority of control participants. Exceptions to this practice at our Lansing sites have included situations where the woman is staying out-of-town with a relative immediately after surgery, the woman declines agency home care, or in instances where her insurance does not cover this service.

F. Control Group

The control group has been further divided into two subgroups (**Control A** and **Control B**), since some surgeons order an agency home care nurse when their patients are assigned to the study control group. This plan to consider two subgroups (**A** and **B**) within our control sample was anticipated and outlined in our Year I Annual Report. **Control A** participants receive conventional post-operative medical care and surgeon-ordered home care provided by an agency nurse. **Control B** participants receive only conventional post-operative medical care following surgery, without any home nursing care.

At the conclusion of participation in the study (3 to 5 weeks post-surgery), all control participants (groups A and B) receive the same resource packet that the **intervention** group received during their participation, and they also receive a \$10 check for contributing to the study. Through informal comments at the end of the interview, control participants have indicated the benefits gained by participating in the study. A common acknowledgment is that the comprehensive interview allows them to look at their cancer experience more holistically and to "put everything into perspective."

G. Intervention Group

The subacute care intervention is accomplished through a minimum of four contacts (two phone calls and two home visits) by a nurse intervener. The first phone contact is made within the first post-discharge day to assess any immediate needs and to schedule the first home visit. The first visit focuses on **physical** issues related to surgery, symptoms, wound and drain care, and quality of life assessment. The second phone contact occurs between the first and second in-home visits to provide an ongoing link to the health care system, assess physical and psychological needs, and to schedule the second visit. Women are also encouraged to contact their intervention nurse by pager between visits if needs or questions arise. At the second visit, the intervention focuses upon **psychological** issues, provides follow-up on physical concerns and **education** regarding breast self exam, arm range-of-motion exercises, and lymphedema prevention. Information on community resources is also provided with the goal of increasing access to opportunities for ongoing resources and support. Finally, one or two additional phone contacts or visits by the nurse intervener are sometimes necessary during the two week period following surgery to ensure a timely return to pre-surgical activities.

The intervention continues to run smoothly and appears to be meeting women's needs. There has been zero attrition by participating surgeons.

H. Intervention Protocol

While the protocol consists of a minimum of two telephone calls and two in-home visits for each woman in the intervention arm of the study, some women may receive additional encounters if assessed as necessary by the study nurse. All protocol steps are covered by the nurse during the first fourteen post-operative days in the participant's home. The intervention protocol continues successfully as in previous years of the study. Please see the Year I Annual Report for details on the protocol.

I. Data Collection (please see Table 1 for data collection schedule and instruments)

Data are collected at 3 points over a four month period: at entry into the study (baseline), at 4 weeks post-surgery, and at 4 months post-surgery. Baseline data are collected from all participants at the time of recruitment and prior to randomization. Data are collected by a nurse from the patient's medical records and by a self-administered instrument which is completed by the participant prior to surgery. Once the nurse intervener completes the intervention with a participant, she contacts the research office so the participant can be assigned to a nurse interviewer for the telephone interview data collection which occurs approximately four weeks after surgery.

The 4-week data collection occurs after the completion of the intervention and prior to re-entry into the formal health care system for adjuvant therapy. Data are collected by a one hour telephone interview with the participant which is conducted by one of four study nurses. The nurse who conducts the interview is never the same nurse who recruits the patient or provides the intervention. This is done to minimize potential bias across roles on the grant. The 4-week data provide information on the immediate effectiveness of the intervention. In some cases, women are referred for chemotherapy as early as three weeks post-surgically. We have allowed for a variation of one week before or after the standard four week data collection point, which provides a range of three to five weeks post-surgery for the interview to be conducted. In most cases, this added flexibility to our interview time-frame allows us to conduct the post-test interview prior to the women commencing adjuvant therapy.

The 4-month data collection is a medical chart audit conducted by a study nurse while recruiting new patients at participating sites. By combining the recruitment and chart audit tasks, the nurse reduces the number of trips to the surgical practice sites. Information on clinical measures (such as stage of disease), return visits to the surgeon, further surgeries, and complications are gathered through the audit. These 4-month data provide information on the post-protocol medical events encountered and needs of women following breast cancer surgery.

J. Data Analysis Plan

1. Baseline evaluation. Frequency distribution and measures of central tendency and variability were calculated for all variables of interest. The variables of interest can be grouped into three broad categories as 1) Physical Functioning; 2) Psychological Well-being (including Quality of Life and Anxiety); and 3) Costs. Within each category several individual measures were analyzed as well. The baseline comparisons were done to evaluate if the groups were the same on demographic and other variables that could impact the outcome variables to be evaluated post-intervention. The statistical methods used to assess for these differences were modified for two reasons: 1) The control group was separated into **Control A** (conventional post-operative medical care **plus** surgeon-ordered home care provided by an agency nurse) and **Control B** (only conventional post-operative medical care); and 2) our initial plan to adjust for possible site differences was not applicable since the majority of the subjects were recruited from the Lansing, Michigan sites. Consequently, for all continuous variables, one-way analysis of variance (ANOVA) was used to assess for baseline differences when comparing all three groups, or a two sample t-test was used when the two control groups were combined and compared to the intervention group.⁵ If the assumptions of normality and equality of variances were not satisfied, we used non-parametric equivalents of these two tests. If differences were observed, analysis of covariance was used for the post-intervention comparisons.⁵ For the discrete variables, we used the chi-square test for comparison of distributions in proportions across several levels of categorical variables in the two or three groups as appropriate, for a given comparison.^{6,7}

2. Intervention evaluation. The primary outcome variables of interest post-intervention were the various aspects of physical functioning and quality of life for the patients. We hypothesized that the intervention group would have fewer physical functioning limitations and higher quality of life, than the non-intervention group. For both instruments (Functional Status and Quality of Life), the outcome measures evaluated included the overall summary value for each instrument as well as the single items or subscale scores which comprise the summary value on each scale. The overall measures were treated as continuous and the individual items on the Likert scale were tested for changes in distribution of proportions. Bivariate analyses (e.g., Pearson r, chi-square, and t-tests) were conducted on selected variables of interest in relation to the specific aims. Repeated measures ANOVA was used to evaluate the impact of the intervention on the outcome variables. All of the above mentioned analyses were carried out in the SPSS⁸ statistical package.

III. RESULTS

The results presented in this Year IV annual report are very consistent with the reported results for Years I through III. The following results are presented in relation to the Statement of Work (see page 2), and the specific aims of the study. The specific aims are:

1. **Improved surgical recovery and self-care knowledge**
2. **Higher functional status (ADLs)**
3. **Fewer symptoms**
4. **Lower anxiety levels**
5. **Higher quality of life**
6. **Less frequent use of health services**
7. **Fewer out-of-pocket payments for health services**

We currently have **221** participants enrolled in the study. This report provides preliminary data on **218** women who have completed the study, with **104** participants in the **intervention** group, **63** in the **control A** group, and **51** in the **control B** group. Data are collected at baseline (pre-surgery) and approximately four weeks after surgery. All data were analyzed as one site rather than by community due to the smaller sample size accrued from the Detroit area sites (St. Joseph Mercy Oakland and William Beaumont Hospitals). One between site difference to note is in the ordering of agency nursing care. No control patients from the Detroit area sites had agency nursing care ordered when not in the intervention arm of the study; whereas approximately 65% of Lansing area control participants received agency care. (Please see **Table 1** for a list of the data collection instruments and schedule.)

The results are presented in both tables and text. The text will highlight key points found in the tables. Data will be presented in the following formats: Between group differences, within group differences from pre- to post-test, and total group results for variables that demonstrated significant findings for the group as a whole (i.e., functional status, symptoms, anxiety, and hospital stay).

A. Pre- and Post-Test Interview Data

1. Demographics (please see Table 2)

Between group differences on categorical variables (e.g., race, marital status) were assessed using chi-square analysis for contingency tables, while group differences for continuous variables (i.e. income and age) were assessed using one-way analysis of variance (ANOVA). There were no significant pre-surgical differences between the three groups on any of the demographic variables; therefore the following data reflect the total sample. The majority of women were Caucasian (92.2%), married (60.1%), had at least some college education (67.0%), and were employed prior to surgery (61.0%). The mean age of the sample was 56 years. The average annual household income was \$54,868. The majority of women had a lumpectomy with axillary node dissection (75.7%).

2. Surgical Recovery and Self-Care Knowledge

Analysis by Group

a. *Antibiotic Use to Prevent or Treat Infection* (please see Table 3): Between group differences on antibiotic use were assessed using chi-square analysis. There were no significant differences found between groups, thus the findings reflect trends in the data. The majority of women did not use antibiotics (76.0%) following their surgery. Of those who did use antibiotics, 70.6% of the women used them to prevent infection, while 29.4% used them to treat infection. The **control B** group had the highest percentage of antibiotic use to treat infection (33.3%).

b. *Surgical Arm Range-of-Motion (ROM) Exercises* (please see Table 4-A): Knowledge regarding range-of-motion (ROM) exercise was evaluated in terms of education received (yes/no) and the number of times taught. Both chi-square analysis and ANOVA were used to assess for between group differences. Among **intervention** participants, a significantly greater proportion (91.3%) reported receiving education on ROM exercises ($p < .001$), when compared to control A (74.6%) and control B (62.7%) participants. Further, among those who reported receiving education, **intervention** participants received a significantly greater number of teaching sessions ($p < .04$), when compared to control A and B participants.

c. *Breast Self-Exam (BSE)* (please see Table 4-B): Differences in BSE knowledge (yes/no) and technique (use pads of fingers, examine area under arm, check for lumps/thickening, and do BSE same time each month) between groups were assessed using chi-square analysis. Trends in the data are reported here since no significant differences were found. When responding to questions on BSE knowledge, 99.0% of **intervention** participants, 98.4% of **control A** participants, and 94.1% of **control B** participants reported understanding the procedure. When asked about the techniques used for BSE, the **intervention** group had the greatest number of participants who reporting using two of the four techniques (pads of the fingers, 98.0%; checking the under arm area, 84.2%).

d. *Lymphedema Prevention* (please see Table 5): Lymphedema prevention was measured in terms of education received (yes/no) and the number of times taught. Both chi-square analysis and ANOVA were used to assess for differences in lymphedema prevention. Among the **intervention** participants, a significantly greater proportion (91.8%) reported receiving

education on lymphedema prevention ($p<.001$), than control A (67.2%) or control B (49.0%). Further, among those who reported receiving education, across the three groups, **intervention** participants received the greatest number of teaching sessions ($p<.02$).

3. Functional Status (ADLs)

Analysis by Group

a. *Frequency of Limitations* (please see **Table 6**): Before and after surgery functional status data were self-reported by women, and collected during the post-surgical interview. Participants were questioned about 23 possible limitations in functional status on a three point scale ranging from “not limited at all” to “limited a lot.” For the 23 functional activities, participants were asked to first recall their functional level prior to surgery, and then to report their current post-surgical level. Chi-square analysis was used to assess for between group differences at both time periods, while paired-sample t-tests were used to assess within group differences from pre- to post-surgery. All three groups reported greater limitation four weeks after surgery. The four most frequently reported limitations post-surgery (common across all groups) were in vigorous activity, moderate activity, pushing heavy objects, and lifting over 10 pounds. Considering between group comparisons, the **control B** group had significantly more limitation in moderate activities before surgery compared to the intervention and control A groups ($p<.05$). Within group comparisons showed a statistically significant increase in limitation for all groups on the top four functional status activities from before to after surgery ($p<.001$).

b. *Severity of Limitations* (please see **Table 7**): For the four most commonly reported limitations experienced by each of the three groups, we further assessed the severity of these limitations using the chi-square analysis. Although differences were not significant, trends in between group comparisons showed that a greater proportion of **intervention** participants reported no change in the severity of the limitation from pre- to post-surgery when compared to the control groups, for vigorous activities, pushing heavy objects, and lifting over ten pounds. In addition, **intervention** participants also had the lowest proportion who experienced an increase in severity of limitation from pre- to post-surgery on these same three activities.

Analysis by Total Sample

c. *Relationship with Other Variables* (please see **Table 8**): For the total sample ($n=218$), a ten item subscale pertaining to upper body limitation was developed from the total functional status instrument and the mean score was correlated with the mean scores for total quality of life, quality of life subscales, and the state anxiety scale to determine the relationship among variables. We found that greater upper body limitation was negatively correlated with total (overall) quality of life, as well as the quality of life subscales (physical, emotional, functional, relationship with doctors, and additional concerns) ($p<.01$ to $p<.05$). Further, upper body limitations were positively correlated with greater state anxiety ($p<.01$).

4. Symptoms Experienced Following Surgery

Analysis by Group

a. *Frequency* (please see **Table 9**): Participants were asked to report on their symptom experience following surgery. They were first asked if they had experienced any of the 21 listed symptoms (yes/no) during the last two weeks. If they had experienced a symptom, they were then asked to rate the severity on a three point scale (mild, moderate, or severe). To compare for possible differences in the mean number of symptoms experienced within each group, the total number of symptoms experienced was calculated for each participant. This continuous variable was assessed using ANOVA. For specific symptoms, a chi-square test for contingency tables was used to compare the severity of selected symptoms between groups. The mean number of symptoms reported by each of the three groups (**intervention**, **control A**, and **control B**) was not significantly different, thus the following findings are based on trends in the data. The four most common symptoms (reported by 60% or more of each group) were pain, fatigue, numbness/tingling, and limitation in surgical arm range-of-motion. When compared to the control groups, the **intervention** group had the greatest proportion of participants reporting the least severe (mild) level of pain and numbness/tingling four weeks after surgery. Additionally, the **intervention** group had the lowest proportion of participants reporting limitation in surgical arm range-of-motion.

b. *Degree of Limitation* (please see **Table 10**): Of those who experienced the four most frequently reported symptoms following surgery, all were asked to rate the extent to which each symptom limited their regular daily activities on a five point scale (not at all, small extent, some extent, great extent, very great extent). Between group differences in the degree of limitation experienced were assessed using chi-square analysis, and no statistically significant differences were found. Trends in the data indicate that **intervention** participants, when compared to the control A and B participants, reported the highest proportion in the no limitation ("not at all") category for pain, fatigue, numbness/tingling, and surgical arm range-of-motion four weeks after surgery.

Analysis by Total Sample

c. *Relationship with Other Variables* (please see **Table 11**): Since the four symptoms of pain, fatigue, numbness/tingling, and limitation in surgical arm range-of-motion were the most commonly reported across all groups, we conducted further descriptive and bivariate analyses of these variables using the entire sample (n=218). We found that 35% (n=76) reported experiencing all four symptoms; 42% (n=91) reported having pain, fatigue and limitation in arm range-of-motion; 44% (n=96) reported experiencing pain, fatigue, and numbness; and 58% (n=127) reported having both pain and fatigue. Therefore, we selected the combination of pain and fatigue, which included over half of all study participants, and tested for differences between those who had both of these symptoms and those who did not experience pain and fatigue. Mean scores were used for upper body functional status, quality of life, anxiety, symptoms, and other health problems (comorbid). The results showed that women who experienced both pain and fatigue, had significantly more limitation in functional activities that involved use of the upper body, lower total quality of life along with lower

physical, social/family, emotional, and functional quality of life, greater anxiety, a greater number of other symptoms, and a greater number of other health problems (comorbidities) ($p < .01$ to $p < .05$).

5. Anxiety

Analysis by Group

a. *State Anxiety* (please see Table 12): State anxiety was measured for all participants before and after surgery. The instrument consisted of 20 items, which were rated on a 1 to 4 scale, where 1 equaled least anxiety and 4 equaled most anxiety. Responses for all items were then summed to create a total state anxiety score. Repeated measures ANOVA was used to assess between group differences for both pre- and post-surgery scores. No between group differences were found. Within group comparisons were made using paired-sample t-tests, and revealed a significant decrease in anxiety for all 3 groups from before to after surgery ($p < .001$). Trends in the data indicate that women in the **intervention** group reported the greatest decrease in anxiety, as well as the lowest level of anxiety four weeks after surgery when compared to the control groups.

Analysis by Total Sample

b. *Relationship with Other Variables* (please see Tables 8, 11, and 13): For the total sample ($n=218$), correlations and t-tests were conducted to determine the relationship of anxiety with quality of life, functional status, and other symptoms. As reported earlier, higher anxiety scores were significantly related with poorer quality of life (total and subscales), and more severe limitation in upper body functioning (see Table 8), as well as experiencing the symptom complex of pain and fatigue (see Table 11). Higher anxiety scores were further found to be significantly related with four psychosocial symptoms: Trouble sleeping, mood changes, difficulty concentrating, and poor appetite ($p < .01$) (see Table 13).

6. Quality of Life (please see Table 14)

Analysis by Group

Quality of life was measured for all participants before and after surgery. Six subscales covered various areas of quality of life: physical well-being, family and social well-being, relationship with doctors, emotional well-being, functional well-being, and additional (breast cancer specific) concerns. The subscales consisted of 2 to 7 items. All items were scored on a 0 to 4 point scale, where 0 equals the lowest quality of life and 4 equals the highest quality of life. A summed score was then created for each subscale. Between and within group differences for both pre- and post-surgery responses were assessed using repeated measures ANOVA. No significant between group differences were found. For within group pre- to post-surgery comparisons, paired sample t-tests were used. All three groups reported significant improvements in emotional well-being ($p < .001$) and additional concerns ($p < .001$ to $p < .05$). In addition, the **intervention** group also showed a significant improvement from pre- to post-surgery in social/family well-being ($p < .01$); whereas the **control A** participants reported a significant decline in physical well-being ($p < .001$) from pre- to post-surgery.

7. Use of Health Services

Analysis by Group

a. *Health Services* (please see **Table 15**): The length of hospital stay and utilization of six health services by the three groups within four weeks post-surgery were compared using the chi-square test for categorical variables and ANOVA. The number of hours after surgery that women were discharged from the hospital was calculated by subtracting admission date/time from discharge date/time. The majority of the total sample (89.4%) were discharged within the anticipated 48 hours or less after surgery. A significantly higher percentage of **control** participants (**A & B combined**) exceeded the 48 hour stay after surgery (14.9%), when compared to the **intervention** participants (5.8%) ($p < .03$). In addition, the **intervention** group had a lower (non-significant) mean hospital stay ($M = 22.18$ hours) when compared to the combined control groups ($M = 24.32$). When the five outliers (greater than 72 hours) from the total sample were eliminated from analysis, the **intervention** group hospital stay became significantly shorter ($p < .03$).

All participants were asked about six health services they had utilized since surgery. Trends in the data indicate that women who received the **intervention** reported the lowest utilization on 3 of the 6 services (primary care, emergency room, and re-hospitalization) when compared to the control groups. In addition, the study nurses made an average of 2.65 home visits per **intervention** participant, which was significantly fewer than the **control A** participants who received an average of 6.44 home visits from agency nurses ($p < .001$).

Analysis by Total Sample

b. *Relationship with Other Variables*: For the total sample ($n = 218$), correlations were conducted to determine the relationship between the length of hospital stay, age, and other health problems (comorbidities). We found that length of hospital stay was positively related to age ($p < .05$), and number of other health problems (comorbidities) ($p < .05$). That is, women who were older or had a greater number of other health problems (comorbidities), were more likely to have a longer hospital stay, regardless of which study group they were in.

8. Use of Complementary Therapies (CTs) (please see **Table 16**)

Analysis by Group

The use of 19 CTs for the treatment of breast cancer were assessed. To test for between group differences on the use of specific CTs, chi-square analysis and ANOVA were used. Approximately 50% or more of each group reported using at least one CT to address their post-breast-cancer-surgery needs. A significantly greater proportion of the **control A** participants reported using therapeutic massage ($p < .04$). Trends in the data showed that the most frequently used therapy by all three groups was special vitamin therapy. When looking at the variety of therapies used, the **intervention** group used 13 different types of therapies, **control A** used 11 types of therapies, and **control B** used 12 types of therapies. The mean number of therapies used by each group did not vary significantly.

9. Out-of-Pocket Expenses During the Four Weeks Following Surgery (please see Table 17)

Analysis by Group

Participants were asked to estimate their out-of-pocket costs in five areas: complementary therapies, medications, special supplies (e.g., dressings for the surgical wound), additional costs (e.g., travel expenses to doctor appointments), and total estimated out-of-pocket costs incurred over the four week period following surgery. ANOVA was used to assess for between group differences in out-of-pocket costs by the three groups. There were no significant differences found between groups, thus the following findings reflect trends in the data. Excluding total out-of-pocket costs, the additional costs category proved to be most expensive for all three groups. The **control B** group incurred the greatest amount of expense in three of the five areas assessed: Medication expenses (M=\$19.39), additional expenses (M=\$274.40), and total out-of-pocket expenses (M=\$208.34).

B. Intervention Protocol Data

Intervention protocol data is obtained only for the **intervention** group (n=104); therefore this portion of the report is not a comparative analysis with the **control** groups.

1. Nursing Contacts Related to the Intervention Protocol (please see Table 18)

As mentioned earlier, the mean number of home visits per participant was 2.65 visits, and the mean number of phone contacts was 4.69. In terms of nursing care time, the mean amount of time spent providing direct nursing care was 61.94 minutes per visit; the mean amount of time spent per telephone encounter was 8.83 minutes in direct assessment and consultation between patient and nurse; and an additional mean of 0.69 minutes was spent on coordination of care with other health professionals via telephone. Record-keeping per home visit averaged 42.65 minutes.

2. Most Frequently Occurring Nursing Diagnoses (please see Table 19)

We continue to use our standardized protocol and nursing diagnoses as developed for this study and outlined in the Year 1 Annual Report. For the overall group of intervention participants (n=104), a total of 25 diagnoses (problems) have been utilized with a mean of 14.34 diagnoses per participant. Thirteen of the diagnoses are included in our standard protocol which is divided into seven major categories specific to the post-surgical breast cancer patient: Included are pain, fatigue, constipation, anxiety, quality of life, incision care, and health education needs. The remaining 12 diagnoses have been opened to meet the individual needs of the various participants as assessed by the study nurse.

IV. DISCUSSION

The following discussion is based on a sample size of n =218. It is presented in relation to the Statement of Work (see page 2), the specific aims, and the hypothesis of the study.

A. Specific Aims and Hypothesis

Our subacute care in-home nursing intervention is targeted to help women attain optimal recovery during the two week period immediately following short-stay surgery for breast cancer, and assist them in regaining their pre-surgical health status prior to initiating adjuvant therapy. This study is testing the hypothesis that when compared to women who are undergoing breast cancer surgery

and receive conventional post-surgical care, recipients of our subacute care intervention will report: 1) Improved surgical recovery and self-care knowledge, 2) higher functional status (ADLs), 3) fewer symptoms, 4) lower anxiety levels, 5) higher quality of life, 6) less frequent use of health services, and 7) fewer out-of-pocket payments for health care services.

B. Post-Test Interview Data Discussion

1. Demographics

Since there were no significant differences between the three groups (**intervention**, **control A**, **control B**) on demographics, all groups were combined and demographics are reported as a total sample. This similarity among groups was anticipated due to our randomization process. The majority of the sample was Caucasian, married, middle-aged women of moderate income and relatively high education, who underwent lumpectomy with axillary node dissection as their initial treatment for breast cancer.

2. Surgical Recovery and Self-Care Knowledge

Discussion of Group Data

a. Infection Status and Antibiotic Use: Women who had a nurse, whether in the **intervention** group or the **control A** group, were more likely than women who did not have a nurse (**control B**) to receive preventive use of antibiotics and avoid the development of infection. This trend highlights the importance of preventing infection during recovery from breast cancer, since even a mild infection can later lead to the development of serious complications such as lymphedema.

b. Surgical Arm Range-of-Motion (ROM) Status: A key part of the nursing protocol for **intervention** participants is to teach and encourage ROM exercises following surgery. Currently, a significantly higher proportion of the **intervention** participants are reporting having received instruction on ROM exercises, plus more time has been spent on this education, as compared to either control group. While not yet reaching a significant level of difference, **intervention** women are reporting the lowest percentage of limitation on arm ROM, when compared to controls A and B (see Table 8).

c. Breast Self-Exam (BSE): Since the knowledge results were very similar between the two groups who had a nurse (**intervention** and **control A**), it may be that having any form of nursing care can improve this knowledge. However, trends in the data indicate that the **intervention** group had the greatest number of women reporting that they consistently conducted the BSE using at least two of the four recommended techniques. While having a nurse (**intervention** or **control A**) may have helped increase knowledge, the study nurse appears to have conveyed the correct techniques most successfully.

d. Lymphedema Prevention: A significantly greater proportion of **intervention** participants reported receiving teaching on prevention of this serious complication. Since the majority of the sample had axillary lymph node dissection, this is critical information. It is of concern that a significantly lower proportion of women in the control groups are not receiving lymphedema information, and when no nurse is involved in care (**control B**), only about one-half of the

women receive any information. Anecdotally, women report during their post-test interview that they may have been given some written materials on lymphedema, but frequently no instruction and minimal emphasis on the potential significance of this condition. While none of our participants experienced lymphedema during the first four weeks post-surgery, lymphedema can occur months after surgery and women must be educated on the techniques for prevention.

3. Functional Status (ADLs)

Discussion of Group Data

a. *Frequency of Limitations:* The majority of the total sample (60% or more) are reporting a significant increase in limitation from pre- to post-surgery (4 weeks after) related to vigorous activities, moderate activities, pushing heavy objects, and lifting activities that involve ten pounds or more. Since most of these activities tend to be strenuous, it may take women longer than a month to resume their pre-surgical levels of activity.

b. *Severity of Limitations:* A trend in the data showed that women receiving the **intervention** had the lowest proportion of participants experiencing an increase in severity of functional status limitation on three of the top four activities from before to after surgery. Therefore, having a study nurse may begin to impact these limitations during the first 4 weeks after surgery. Clearly, most women who undergo breast cancer surgery are experiencing limitations at 4 weeks post-surgery.

Discussion of Total Sample Data

c. *Relationship with Other Variables:* Women who experience greater upper body limitation, also report significantly lower quality of life (total and subscales), and significantly higher levels of anxiety. This may point to the fact that when one has poor physical health, the psychosocial health also suffers. These findings underscore the need for interventions that address physical issues (i.e., regaining upper body functioning post-surgery), and their impact on psychosocial issues (i.e., quality of life and anxiety).

4. Symptoms Experienced Following Surgery

Discussion of Group Data

a. *Frequency and Severity:* All three groups reported experiencing a comparable number and range of symptoms. Following the trend established during Years I through III of the study, we continue to see 60% or more of participants reporting pain and fatigue as their most common symptoms, while limited arm range-of-motion and numbness/tingling are now similarly reported across all groups. The **intervention** group had the lowest proportion of women reporting limitation in arm range-of-motion, and the greatest proportion of women reporting mild severity (compared to moderate or severe) on pain, and numbness/tingling. This trend may indicate that having a study nurse involved in care can help minimize symptom severity.

b. Degree of Limitation: A trend in the data showed that **Intervention** women reported the highest proportion of "no limitation" 4 weeks after surgery on pain, fatigue, numbness/tingling, and surgical arm range-of-motion, when compared to the control groups. Of those who reported pain as causing some degree of limitation, the greatest percentage of **intervention** participants reported that pain limited them to a small extent, while a greater proportion of both **control** groups (**A & B**) reported that pain limited them to some extent or greater, i.e., more than a small extent. While differences are not statistically significant at this time, the study nurse appears to be managing limitations caused by symptoms more successfully than either of the control groups.

Discussion of Total Sample Data

c. Relationship with Other Variables: Women who experience a combination of key symptoms after surgery (i.e., pain and fatigue) are also likely to have a significantly greater number of other health problems, both physical and psychosocial. Physically, they are more likely to experience upper body functional limitations, a greater number of other symptoms, and have more comorbidities. Psychosocially, these women are more likely to report having significantly lower quality of life and significantly increased levels of anxiety. These findings emphasize the need for interventions aimed at minimizing symptoms post-surgery (especially pain and fatigue), so as to decrease the number of other physical and psychosocial concerns encountered.

5. Anxiety

Discussion of Group Data

a. State Anxiety: Based on repeated measures ANOVA, we found a significant within group reduction in state anxiety from pre- to post-surgery for all three groups. This would be expected since anticipation of the surgical experience would be likely to raise anxiety for all women, and conversely, decrease anxiety once the surgical experience was behind them. However, while not statistically significant, the **intervention** group demonstrated the greatest decrease in anxiety and the lowest level of anxiety post-surgery when compared to the control groups.

Discussion of Total Sample Data

b. Relationship with Other Variables: The correlational analysis on post-surgery data showed that increased anxiety was significantly related with a multitude of other physical and psycho-behavioral variables. It is difficult to say whether the physical difficulties contribute to the psychological distress or vice versa. It does point to the need for interventions that extend beyond the first two weeks after surgery in both of these areas.

6. Quality of Life

Discussion of Group Data

Intervention women reported significant within group improvement in 3 areas of quality of life after surgery, compared to two areas of improvement for the control A and control B groups. As would be expected, physical well-being showed a decline after surgery across all three groups. This trend towards a decline in quality of life can be attributed to the fact that women were only 3 to 5 weeks out from surgery at the time of the post-test, and they were

still recovering. This again, as with physical functioning findings, points to the on-going need for physical recuperative interventions that extend past the first 4 week post-surgical time period.

7. Use of Health Services

Discussion of Group and Total Sample Data

a. Health Services: A goal of this study is to provide cost effective, comprehensive, physical care, emotional care, and health education to women following breast cancer surgery. Trends in the data demonstrate that women in the **intervention** group are reporting the lowest percentage of primary care visits, emergency room visits, and re-hospitalizations after surgery, among the three groups. In addition, **intervention** women had the shortest length of hospital stay, and received significantly fewer (less than half the number) nursing visits as compared to control A participants, with similar or better results. The trend toward a shorter hospital stay for intervention women was an unexpected finding since there were no significant differences in pre-surgical demographics or comorbidities. However, it does appear that women who are older and have more comorbidities also have a longer hospital stay, regardless of study group.

8. Complementary Therapies (CTs)

Discussion of Group Data

It appears that the majority of breast cancer patients are using complementary therapies in addition to customary medical care. We realize that CTs are becoming a national trend among cancer patients. While a trend, it is interesting to note that **control A** participants seem to be the most involved in supplementing their care with CTs since they had the highest proportion using one or more therapies. This higher use may be an attempt to supplement conventional health care; whereas, the **intervention** women are exploring the largest number of different types of CTs. Based on the expressed interest by our sample, this is an area where research is needed to determine the efficacy of various CTs with breast cancer patients.

9. Out-of-Pocket Expenses

Discussion of Group Data

As mentioned in the annual reports for Years I through III, some participants continue to be reluctant to discuss finances. Based on trends in our data, the **control B** group, who did not have any form of nursing care, incurred the greatest expense in three of five areas assessed. Perhaps having a nurse helps women reduce personal costs through greater self-care education, and being more aware of resources in the community, which reduces the need for some out-of-pocket expenses.

C. Intervention Protocol Data Discussion

1. Nursing Contacts Related to the Intervention Protocol

When comparing our intervention data with our post-test interview data, we are able to see differences between our **control A** and **intervention** participants. Consistent with the findings for Years I through III, the **intervention** participants are requiring less than half the number of home visits when compared to **control A** participants who receive agency home care. This

may be partially accounted for by the fact that our **intervention** nurses provide a very targeted self-care protocol during their visits, rather than performing fee-for-service care for the woman.

Our protocol encourages independence and self-care competency for women in the **intervention** arm of the study. In addition, the **intervention** nurses make an average of 5 telephone contacts to the women, which assists the women in managing their own care. Our study is documenting the optimal amount of nursing care needed in the first two weeks following breast cancer surgery to achieve the most desirable outcomes. While we do not have information on agency home care in terms of the amount of time spent in the home per visit, record keeping, and coordination of care by the nurses, we feel that the approximately one hour per home visit spent by our intervention nurses, along with the 43 minutes of record-keeping time is very reasonable and cost effective.

2. Most Frequently Occurring Nursing Diagnoses

Our standardized protocol (which includes 13 specific nursing diagnoses) provides for assessment of seven major nursing diagnosis categories which are specific for the post-surgical breast cancer patient: pain, fatigue, constipation, anxiety, quality of life, incision care, and health education needs. In addition to the protocol diagnoses, our home care nurses individualize their assessment to each woman's needs. Some of these additional areas of need deal with nausea, community resource needs, depression, and education regarding potential seroma formation. The additional nursing diagnoses, at this time, appear to be addressing unique needs of individual women, and we will continue to assess these extra needs on a per participant basis.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

KEY RESEARCH ACCOMPLISHMENTS AND TRENDS

Among all adult women in our study who have had a post-surgical agency/hospital stay of 48 hours or less ($M=23.28$), we have investigated 3 types of follow up care: 1) our targeted post-surgical nursing in-home care intervention referred to as the "subacute care intervention"; 2) surgeon-ordered agency nursing care in the home; and 3) no nursing care after discharge. Many of these preliminary results are demonstrating trends; whereas, other results have reached a statistically significant level. Both statistically significant findings and trends will be outlined here.

Significant Findings:

- "Subacute care intervention" participants received an average of 2.65 home visits, which was significantly fewer than the control participants (agency nursing care group), who required an average of 6.44 home visits to attain comparable physical, emotional, and educational outcomes.
- A significantly greater number of women who received the targeted "subacute care intervention" reported receiving teaching on correct techniques for surgical arm range-of-motion exercises and protective measures against lymphedema, than those who received agency nursing care or no nursing care in the home.

Trends in the Data:

- A greater number of women who received the targeted "subacute care intervention" reported less use of health services (e.g., primary care, emergency room, and re-hospitalization) compared to the control groups, and thus a decrease in cost.
- Women who received the targeted "subacute care intervention" reported a greater reduction in state anxiety, and improvements in more areas of quality of life (emotional well-being, social/family well-being, and concerns related specifically to breast cancer) pre- to post-surgery compared to the control groups.
- A lower proportion of the women who received the targeted "subacute care intervention" reported experiencing limitation in surgical arm range-of-motion following surgery.
- Women in the "subacute care intervention" reported lower symptom severity on key symptoms (e.g., pain, and numbness/tingling) when compared to those who received agency nursing care or no nursing care. Of those participants who experienced the symptoms of pain, fatigue, numbness/ tingling, and limitation in arm range-of-motion, a non-significant trend shows a greater proportion of women receiving the "subacute care intervention" reported that these symptoms caused "no limitation" in activities of daily living.
- Women who had a nurse (intervention or agency), reported a trend of less use of antibiotics for the treatment of infection compared to the no nurse group.
- A cost trend demonstrated that women who did not receive post-surgical nursing care, reported the highest level of out-of-pocket cost in 3 of 5 areas (medications, additional expenses, and total out-of-pocket expenses), when compared to the groups who had a study or agency nurse.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

REPORTABLE OUTCOMES

I. PUBLICATIONS (See Appendix A for Publication by P.I.)

1. Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Workgroup of European Nurse Researchers Proceedings Book, 431-437.

II. PRESENTATIONS (See Appendix C for Grant Productivity Report)

1. Wyatt, G.K. & Beckrow, K.C. (2000, May 25). A nursing protocol for subacute recovery following breast cancer surgery. Paper presentation for the 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland.
2. Wyatt, G.K. (2000, April 13). A nursing and yoga intervention for women with breast cancer. Presentation at Surgical Grand Rounds, Sparrow Health System. Continuing medical education units provided to attendees.
3. Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November 5). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. Poster session presented at the First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI.
4. Smania, M., Wyatt, G.K., Given, C.W., & Given, B.A. (1999, October 19). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.

III. ABSTRACTS (See Appendix D for Grant Abstracts)

1. Wyatt, G.K., Given, B., & Given, C.W. (2000, June). In-home nursing care for women following breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope. Proceedings Book, 1, (342).
2. Wyatt, G.K., Given, C.W., & Given, B.A. (2000, May). A nursing protocol for subacute recovery following breast cancer surgery. The 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland. Book of Abstracts, (42).
3. Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI. Proceedings Book.
4. Smania, M., Wyatt, G.K., Given, C.W., & Given, B.A. (1999, October). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (47).

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

CONCLUSIONS

I. SUMMARY OF RESULTS

Overall, the **intervention** women are being discharged sooner, using fewer health services post-discharge, and receiving less than half the number of nurse visits, when compared to controls, and yet are achieving comparable or better physical, emotional, and educational outcomes. From the data obtained thus far, women in the **intervention** arm of the study are receiving follow-up care in the home on the average of 2.65 **visits** and 4.69 **phone calls** in the first 14 days post-operatively by a study nurse. Our **control A** women, who receive agency home care, are currently receiving **over twice the number of home visits** as our intervention participants. The **intervention** group is achieving the most favorable outcomes in several areas. The major differences are improvement in quality of life, symptom experience, anxiety, education regarding range-of-motion exercises, breast self-exam, and the prevention of lymphedema, and cost savings, including fewer visits to primary care providers, emergency rooms, and re-hospitalization. The area where all women are reporting limitation at 4 weeks after surgery is in functional status. They remain limited in range-of-motion and activities of daily living (ADLs) and all report a lower physical quality of life. Future research must address the physical functioning and mobility needs that continue beyond 4 weeks after surgery.

II. EVALUATION OF KNOWLEDGE AS A SCIENTIFIC PRODUCT

The findings and trends from our work could translate into national policy for discharge planning in terms of length of hospital stay, standard of care for subacute post-surgical needs, optimal amount of nursing care necessary to achieve favorable outcomes, and associated costs.

A. Policy on Length of Stay: Our research demonstrates that an average of 22.18 hours is adequate to hospitalize women for breast cancer surgery, when they receive a subacute care nursing intervention in the home following discharge. Rather than the current emphasis on length of hospital stay, we propose a shift in the focus to high quality, standardized nursing care in the home.

B. Policy on Standard of Care: A targeted subacute care protocol can achieve desirable physical, psychological, and educational outcomes post-surgically in the home, while reducing the use of costly medical services (i.e., primary care, emergency room, and re-hospitalizations).

C. Policy on Dose of Post-Surgical Home Care: A nursing care dose of 2.65 home visits (utilizing the subacute care protocol) can achieve comparable or better physical, psychological, and educational outcomes than over twice this number of visits by an agency nurse. Cost savings would be expected to be similarly proportional.

D. Policy on Necessary and Allowable Out-of-Pocket Costs: Utilizing a targeted nursing-based protocol following discharge for breast cancer surgery may help standardize reasonable and necessary out-of-pocket costs for patients.

III. FUTURE WORK

In order to further the research of the current DoD study, Dr. Wyatt recently developed a new proposal which, in addition to providing the targeted subacute care intervention (to produce a common baseline), is aimed at addressing the needs of women following surgery and during the adjuvant therapy phase of care. This project will address the physical limitation and lower physical quality of life reported in the current study. We will test the effects of a supportive care intervention that incorporates yoga to address the physical limitations such as range of motion and activities of daily living. Along with the yoga, there will be an educational component to address emotional issues, body chemistry, body image, chemotherapy, radiation, and financial considerations. We will test a standardized protocol of yoga stretches and education through a randomized clinical trial. (See **Appendix E** for Proposal Abstracts.)

There is much that continues to be needed in the area of supportive care for women with breast cancer. We hope that our work makes a substantial contribution to this goal.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

REFERENCES

1. Oberst, M.T., & Scott, D.W. (1988). Post-discharge distress in surgically treated cancer patients and their spouses. Research in Nursing & Health, 11(4), 223-233.
2. Ganz, P.A., Schag, C.C., Polinsky, M.L., Heinrich, R.L., & Flack, V.F. (1987). Rehabilitation needs and breast cancer: The first month after primary therapy. Breast Cancer Research and Treatment, 10, 243-253.
3. Polinsky, M.L., Fred, C., & Ganz, P.A. (1991). Quantitative and qualitative assessment of a case management program for cancer patients. Health and Social Work, 16, 176-183.
4. Ellis, C. (1994). Short-stay surgery for mastectomy. Quality of Life: A Nursing Challenge, 3, 21-24.
5. Zar J. H. (1984). Biostatistical analysis (2nd ed.). Englewood Cliffs: Prentice Hall.
6. Fleiss, J.L. (1981). Statistical methods for rates and proportions (2nd ed.). New York: John Wiley & Sons.
7. Schlesselman, J. J. (1982). Case-control studies: Design, conduct, analysis. New York: Oxford University Press.
8. SPSS, Inc. (1998). SPSS base 8.0 user's guide for Windows. Chicago, Illinois.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

TABLES

Title	Table
Data Collection Schedule	Table 1
Demographics	Table 2
Surgical Recovery and Self Care Knowledge - Antibiotic Use	Table 3
Surgical Recovery and Self Care Knowledge - Range-of-Motion Exercises	Table 4A
Surgical Recovery and Self Care Knowledge - Breast Self-Exam	Table 4B
Surgical Recovery and Self Care Knowledge - Lymphedema Prevention	Table 5
Functional Status - Five Most Frequently Reported Limitations	Table 6
Functional Status - Severity of Limitations	Table 7
Functional Status (Upper Body Limitation) - Relationship with Other Variables	Table 8
Symptoms Experienced Following Surgery - Frequency	Table 9
Symptoms Experienced Following Surgery - Degree of Limitation	Table 10
Symptoms of Pain and Fatigue Experienced Following Surgery - Relationship with Other Variables ..	Table 11
STATE Anxiety Over Time	Table 12
STATE Anxiety - Relationship with Other Symptoms	Table 13
Quality of Life Over Time	Table 14
Use of Health Services - Comparisons Across Groups	Table 15
Use of Complementary Therapies	Table 16
Out-of-Pocket Expenses Following Surgery	Table 17
Nursing Contacts Related to the Intervention Protocol	Table 18
Most Frequently Occurring Nursing Diagnoses	Table 19

Table 1

DATA COLLECTION SCHEDULE

MEASURES	PRE-SURGERY	POST-SURGERY (4 Weeks)
Demographic Data Sheet	X	N/A
Functional Status (Modified SF-36)	X	X
Symptom Experience (Modified)	N/A	X
Healing Process	N/A	X
Anxiety (Speilberger State-Trait)	X	X
Quality of Life FACT-B	X	X
Out-of-Pocket Health Costs	N/A	X
Chart Audit (cancer stage, surgery, lymph node involvement)	N/A	X

Table 2

DEMOGRAPHICS

Intervention (n=104)																Control A' (n=63)				Control B'' (n=51)				Total Controls A & B (n=114)				Study Total (n=218)							
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			
n																%				n				%				n				%			

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 3

SURGICAL RECOVERY AND SELF CARE KNOWLEDGE: ANTIBIOTIC USE TO PREVENT OR TREAT INFECTION

	No Antibiotic Use			Used Antibiotics			Used Antibiotics		
	<i>Total</i>			<i>Total</i>			<i>To Prevent Infection</i>		
	n	%		n	%		n	%	n
Intervention (n=104)	76/104	73.1%		28/104	26.9%		19/27	70.4%	8/27
Control A* (n=63)	48/63	76.2%		15/63	23.8%		11/15	73.3%	4/15
Control B** (n=51)	41/50	82.0%		9/50	18.0%		6/9	66.7%	3/9
Total (n=218)	165/217	76.0%		52/217	24.0%		36/51	70.6%	15/51

*Received nursing care provided by an agency nurse

**Received no nursing care

29.4%

26.7%

29.6%

Table 4-A

SURGICAL RECOVERY AND SELF-CARE KNOWLEDGE: RANGE-OF-MOTION (ROM) EXERCISES

	Intervention (n=104)		Control A* (n=63)		Control B** (n=51)		Total Controls A & B (n=114)					
	n	%	n	%	n	%	n	%				
Received teaching for ROM exercises	95	91.3%*	47	74.6%	32	62.7%	79	69.3%				
	Intervention (n=104)		Control A* (n=63)		Control B** (n=51)		Total Controls A & B (n=114)					
	n	M	SD	n	M	SD	n	M	SD			
Number of times ROM taught**	95	1.76	0.80	47	1.51	0.88	32	1.38	0.66	79	1.46	0.80

* $p < .001$ ** $p < .04$

Table 4-B

SURGICAL RECOVERY AND SELF-CARE KNOWLEDGE: BREAST SELF-EXAM (BSE)

	Intervention (n=104)		Control A* (n=63)		Control B** (n=51)		Total Controls A & B (n=114)	
	n	%	n	%	n	%	n	%
Knowledge of BSE	102/103	99.0%	62/63	98.4%	48/51	94.1%	110/114	96.5%
BSE Technique								
--Use pads of fingers	99/101	98.0%	58/62	93.5%	43/48	89.6%	101/110	91.8%
--Examine area under arm	85/101	84.2%	52/62	83.9%	40/48	83.3%	92/110	83.6%
--Check for lumps/thickening	96/101	95.0%	61/62	98.4%	46/48	95.8%	107/110	97.3%
--Do BSE same time each month	40/102	39.2%	27/62	43.5%	24/48	50.0%	51/110	46.4%

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 5

SURGICAL RECOVERY AND SELF-CARE KNOWLEDGE: LYMPHEDEMA PREVENTION

(These data pertain only to women who had axillary lymph node dissection)

	Intervention (n=104)		Control A' (n=63)		Control B'' (n=51)		Total Controls A & B (n=114)					
	n	%	n	%	n	%	n	n	M	SD		
Received teaching for lymphedema prevention	90/98	91.8%*	39/58	67.2%	24/49	49.0%	63/107	58.9%				
	Intervention (n=104)		Control A' (n=63)		Control B'' (n=51)		Total Controls A & B (n=114)					
	n	M	SD	n	M	SD	n	n	M	SD		
Number of times taught**	90/98	2.08	1.23	39/58	1.82	1.00	24/49	1.38	0.65	63/107	1.65	0.90

* $p < .001$ ** $p < .02$

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 6

FUNCTIONAL STATUS: FIVE MOST FREQUENTLY REPORTED LIMITATIONS

Intervention (n=104)						
	Before		After		Change	
	n	%	n	%	n	%
Pushing Heavy Objects	24/103	23.3%	72/102	70.6%	48/102	47.1%
Vigorous Activity	26/103	25.2%	71/103	68.9%	45/103	43.7%
Moderate Activity	8/104	7.7%	71/103	68.9%	63/103	61.2%
Lifting Objects > 10 lbs.	15/104	14.4%	70/103	68.0%	55/103	53.4%
Control A* (n=63)						
	Before		After		Change	
	n	%	n	%	n	%
Pushing Heavy Objects	9/60	15.0%	39/57	68.4%	30/57	52.6%
Vigorous Activity	16/63	25.4%	47/63	74.6%	31/63	49.2%
Moderate Activity	5/63	7.9%	47/63	74.6%	42/63	66.7%
Lifting Objects >10 lbs.	14/63	22.2%	47/62	75.8%	33/62	53.2%
Control B** (n=51)						
	Before		After		Change	
	n	%	n	%	n	%
Pushing Heavy Objects	7/50	14.0%	34/50	68.0%	27/50	54.0%
Vigorous Activity	11/49	22.4%	35/50	70.0%	24/49	49.0%
Moderate Activity	10/50	20.0%*	35/50	70.0%	25/50	50.0%
Lifting Objects >10 lbs.	4/50	8.0%	31/49	63.3%	27/49	55.1%

* $p < .05$ Note: All within group pre- to post-surgery differences were significant at $p < .001$

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 7

FUNCTIONAL STATUS: SEVERITY OF LIMITATIONS

	Intervention		Control A*		Control B**		Total Controls A & B	
	n	%	n	%	n	%	n	%
Pushing Heavy Objects								
No Change in limitation from Pre to Post	49/102	48.0%	25/57	43.9%	22/50	44.0%	47/107	43.9%
Increase in limitation from Pre to Post	53/102	52.0%	32/57	56.1%	28/50	56.0%	60/107	56.1%
Vigorous Activity								
No Change in limitation from Pre to Post	36/103	35.0%	21/63	33.3%	17/49	34.7%	38/112	33.9%
Increase in limitation from Pre to Post	67/103	65.0%	42/63	66.7%	32/49	65.3%	74/112	66.1%
Moderate Activity								
No Change in limitation from Pre to Post	39/103	37.9%	20/63	31.7%	25/50	50.0%	45/113	39.8%
Increase in limitation from Pre to Post	64/103	62.1%	43/63	68.3%	25/50	50.0%	68/113	60.2%
Lifting Objects > 10 lbs								
No Change in limitation from Pre to Post	45/103	43.7%	27/62	43.5%	21/49	42.9%	48/111	43.2%
Increase in limitation from Pre to Post	58/103	56.3%	35/62	56.5%	28/49	57.1%	63/111	56.8%

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 8

FUNCTIONAL STATUS (UPPER BODY LIMITATION) - RELATIONSHIP WITH OTHER VARIABLES

SUBSCALES	Quality of Life (QOL) (Total)	QOL - Physical (Subscale)	QOL - Emotional (Subscale)	QOL - Functional (Subscale)	QOL - Doctor Relation (Subscale)	QOL - Additional Concerns (Subscale)	State Anxiety
Functional Status (Upper Body Limitation)	-.427**	-.478**	-.210**	-.451**	-.158*	-.296**	.260**

* $p \leq .05$ (2-tailed)

** $p \leq .01$ (2-tailed)

Table 9

SYMPTOMS EXPERIENCED FOLLOWING SURGERY: FREQUENCY

SYMPTOMS EXPERIENCED FOLLOWING SURGERY, THE CONTROL								
	Mean # of Symptoms (four weeks after surgery)		Standard Deviation # of Symptoms		Min-Max # of Symptoms		Possible Range of Total Symptoms	
Intervention (n=104)	6.60		3.37		0-14		0-21	
Control A' (n=63)	7.02		3.73		0-15		0-21	
Control B'' (n=51)	6.35		3.24		0-13		0-21	
Total Controls A & B (n=114)	6.72		3.52		0-15		0-21	
Symptoms Reported by 60% or More of Each Group (four weeks after surgery)								
	Intervention (n=104)		Control A' (n=63)		Control B'' (n=51)		Total Controls A&B (n=114)	
	n	%	n	%	n	%	n	%
Pain								
No	22	21.2%	22	34.9%	17	33.3%	39	34.2%
Yes	82	78.8%	41	65.1%	34	66.7%	75	65.8%
Mild	45	54.9%	18	43.9%	18	52.9%	36	48.0%
Moderate	32	39.0%	20	48.8%	14	41.2%	34	45.3%
Severe	5	6.1%	3	7.3%	2	5.9%	5	6.7%
Fatigue								
No	26	25.0%	18	28.6%	15	29.4%	33	28.9%
Yes	78	75.0%	45	71.4%	36	70.6%	81	71.1%
Mild	39	50.0%	22	48.9%	18	51.4%	40	50.0%
Moderate	31	39.7%	23	51.1%	13	37.1%	36	45.0%
Severe	8	10.3%	0	0.0%	4	11.4%	4	5.0%
Numbness and Tingling								
No	31	29.8%	21	33.3%	12	23.5%	33	28.9%
Yes	73	70.2%	42	66.7%	39	76.5%	81	71.1%
Mild	35	47.9%	13	31.7%	18	46.2%	31	38.8%
Moderate	26	35.6%	22	53.7%	17	43.6%	39	48.8%
Severe	12	16.4%	6	14.6%	4	10.3%	10	12.5%
Limitation in Surgical Arm								
Range of Motion								
No	39	37.5%	18	28.6%	18	35.3%	36	31.6%
Yes	65	62.5%	45	71.4%	33	64.7%	78	68.4%
Mild	34	52.3%	21	46.7%	20	60.6%	41	52.6%
Moderate	26	40.0%	18	40.0%	10	30.3%	28	35.9%
Severe	5	7.7%	6	13.3%	3	9.1%	9	11.5%

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 10

SYMPTOMS EXPERIENCED FOLLOWING SURGERY: *DEGREE OF LIMITATION*

	Intervention			Control A'			Control B "			Total Controls A & B		
	n	%	n	%	n	%	n	%	n	%	n	%
Pain	(n=81)		(n=41)		(n=34)		(n=75)					
Not at all	27	33.3%	12	29.3%	9	26.5%	21	28.0%				
Small extent	23	28.4%	5	12.2%	7	20.6%	12	16.0%				
Some extent	24	29.6%	17	41.5%	15	44.1%	32	42.7%				
Great extent	6	7.4%	4	9.8%	2	5.9%	6	8.0%				
<u>Very great extent</u>	<u>1</u>	<u>1.2%</u>	<u>3</u>	<u>7.3%</u>	<u>1</u>	<u>2.9%</u>	<u>4</u>	<u>5.3%</u>				
Total Limitations	54	66.6%	29	70.8%	25	73.5%	54	72.0%				
Fatigue	(n=77)		(n=45)		(n=35)		(n=80)					
Not at all	24	31.2%	14	31.1%	9	25.7%	23	28.8%				
Small extent	19	24.7%	12	26.7%	10	28.6%	22	27.5%				
Some extent	21	27.3%	13	28.9%	11	31.4%	24	30.0%				
Great extent	12	15.6%	5	11.1%	4	11.4%	9	11.3%				
<u>Very great extent</u>	<u>1</u>	<u>1.3%</u>	<u>1</u>	<u>2.2%</u>	<u>1</u>	<u>2.9%</u>	<u>2</u>	<u>2.5%</u>				
Total Limitations	53	68.9%	31	68.9%	26	74.3%	57	71.3%				
Numbness and Tingling	(n=72)		(n=41)		(n=39)		(n=80)					
Not at all	46	63.9%	20	48.8%	22	56.4%	42	52.5%				
Small extent	11	15.3%	8	19.5%	7	17.9%	15	18.8%				
Some extent	10	13.9%	9	22.0%	8	20.5%	17	21.3%				
Great extent	2	2.8%	2	4.9%	2	5.1%	4	5.0%				
<u>Very great extent</u>	<u>3</u>	<u>4.2%</u>	<u>2</u>	<u>4.9%</u>	<u>0</u>	<u>0.0%</u>	<u>2</u>	<u>2.5%</u>				
Total Limitations	26	36.2%	21	51.3%	17	43.5%	38	47.6%				
Limitation in Surgical Arm Range of Motion	(n=64)		(n=45)		(n=33)		(n=78)					
Not at all	21	32.8%	13	28.9%	7	21.2%	20	25.6%				
Small extent	13	20.3%	11	24.4%	15	45.5%	26	33.3%				
Some extent	21	32.8%	15	33.3%	6	18.2%	21	26.9%				
Great extent	6	9.4%	5	11.1%	4	12.1%	9	11.5%				
<u>Very great extent</u>	<u>3</u>	<u>4.7%</u>	<u>1</u>	<u>2.2%</u>	<u>1</u>	<u>3.0%</u>	<u>2</u>	<u>2.6%</u>				
Total Limitations	43	67.2%	32	71.0%	26	78.8%	58	74.3%				

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 11

SYMPTOMS OF PAIN & FATIGUE EXPERIENCED FOLLOWING SURGERY - RELATIONSHIP WITH OTHER VARIABLES

Post-Surgery Variable	Experienced both Pain and Fatigue (n=127) or (58.3%)				Did NOT Experience both Pain and Fatigue (n=91) or (41.7%)				t-value
	M	SD	Min/Max		M	SD	Min/Max		
Functional Status - Upper Body Limitation	1.80	.48	1.00-3.00		1.49	.40	1.00-2.80		5.04**
Quality of Life (QOL) Total	2.99	.50	1.38-3.79		3.40	.33	2.38-4.00		7.35**
QOL - Physical Subscale	3.04	.69	0.67-4.00		3.62	.39	2.33-4.00		7.86**
QOL - Social/Family Subscale	3.47	.60	1.00-4.00		3.66	.45	1.67-4.00		2.77**
QOL - Emotional Subscale	3.01	.74	0.50-4.00		3.40	.57	1.00-4.00		4.38**
QOL - Functional Subscale	2.67	.76	0.14-4.00		3.23	.58	1.71-4.00		5.81**
State Anxiety	1.95	.66	1.00-4.00		1.61	.54	1.00-3.15		4.00**
Other Symptoms Experienced	6.20	2.91	0.00-13.00		3.84	2.75	0.00-13.00		6.04**
Other Health Problems (co-morbid)	2.20	1.86	0.00-9.00		1.62	1.59	0.00-6.00		2.45*

* $p \leq .05$ (2-tailed)** $p \leq .01$ (2-tailed)

Table 12

STATE ANXIETY OVER TIME

(The higher the score, the greater the anxiety)

Time	Intervention (n=88)				Control A' (n=49)				Control B'' (n=39)			
	M	SD	Min-Max		M	SD	Min-Max		M	SD	Min-Max	
Before surgery	42.45	13.87	20-78		40.97	13.45	19-75		45.57	14.22	20-80	
After surgery	34.91*	12.40	20-77		35.54*	12.78	20-63		39.14*	13.02	20-80	

* $p < .001$ (within group comparison)

'Received nursing care provided by an agency nurse

..Received no nursing care

Table 13

STATE ANXIETY - *RELATIONSHIP WITH OTHER SYMPTOMS*

Symptom	Mean State Anxiety Score for those who Experienced Symptom				Mean State Anxiety Score for those who did NOT Experience Symptom				t-value
	n	M	SD	Min/Max	n	M	SD	Min/Max	
Trouble Sleeping	111	2.00	0.64	1.00-4.00	107	1.61	0.58	1.00-3.85	4.71**
Mood Changes	104	2.06	0.64	1.00-4.00	114	1.58	0.53	1.00-3.10	6.05**
Difficulty Concentrating	65	2.11	0.67	1.00-4.00	153	1.68	0.58	1.00-3.85	4.82**
Poor Appetite	44	2.18	0.72	1.00-4.00	174	1.71	0.58	1.00-3.70	4.58**

** $p \leq .01$ (2-tailed)

Table 14

QUALITY OF LIFE OVER TIME

(The higher the mean, the greater the quality of life)

Intervention (n=104)						
Sub-scales	Before Surgery			After Surgery		
	M	SD	Min/Max	M	SD	Min/Max
Physical well-being	20.58	3.86	1-24	19.86	3.50	7-24
Social/family well-being	19.65	4.78	8-24	20.81**	3.83	6-24
Relationship with doctors	7.25	1.40	0-8	7.25	1.15	1-8
Emotional well-being	16.23	4.99	3-24	19.29*	4.08	3-24
Functional well-being	21.00	5.82	0-28	20.74	5.02	6-28
Additional concerns	18.43	3.89	8-26	19.76*	4.09	10-28
Control A* (n=63)						
Sub-scales	Before Surgery			After Surgery		
	M	SD	Min/Max	M	SD	Min/Max
Physical well-being	21.31	2.32	14-24	19.18*	4.72	5-24
Social/family well-being	20.37	4.39	7-24	21.10	3.39	10-24
Relationship with doctors	7.24	1.20	4-8	7.18	1.15	4-8
Emotional well-being	16.24	5.10	4-24	19.35*	4.17	6-24
Functional well-being	20.97	4.92	10-28	20.05	5.13	5-28
Additional concerns	18.68	3.91	10-26	19.83***	4.30	8-28
Control B** (n=51)						
Sub-scales	Before Surgery			After Surgery		
	M	SD	Min/Max	M	SD	Min/Max
Physical well-being	20.45	4.31	0-24	19.49	3.98	4-24
Social/family well-being	20.16	4.38	8-24	20.75	3.85	10-24
Relationship with doctors	7.55	0.94	4-8	7.47	1.24	2-8
Emotional well-being	15.45	4.65	5-23	17.90*	4.36	5-24
Functional well-being	20.69	6.65	1-28	19.80	5.68	1-28
Additional concerns	18.67	4.23	9-26	19.55***	4.80	8-28

* $p < .001$ (within group comparison)** $p < .01$ (within group comparison)*** $p < .05$ (within group comparison)

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 15

USE OF HEALTH SERVICES: COMPARISONS ACROSS GROUPS

Surgery	Intervention (n=104)			Control A' (n=63)			Control B'' (n=51)			Total Controls A & B (n=114)			Study Total (n=218)		
	n	M	SD	n	M	SD	n	M	SD	n	M	SD	n	M	SD
Hospital Stay (hours)	104	22.18	16.41	63	24.49	18.02	51	24.11	13.30	114	24.32	16.06	218	23.28	16.23
Hospital Stay (5 outliers omitted)	100	19.53*	11.34	62	24.00	16.57	51	24.11	13.30	113	24.05	15.25	213	22.07	13.52
	n	%		n	%		n	%		n	%		n	%	
Hospital Stay > 48 hour	6/104	5.8%*		11/63	17.5%		6/51	11.8%		17/114	14.9%		23/218	10.6%	
Services/Visits	Intervention (n=104)			Control A' (n=63)			Control B'' (n=51)			Total Controls A & B (n=114)					
	n	%	M	SD	n	%	M	SD	n	%	M	SD	n	%	SD
Surgeon Post-op	104	100.0%	2.74	1.99	63	100.0%	2.79	1.68	51	100.0%	2.84	1.84	114	100.0%	2.81 1.74
Laboratory	14	13.5%	1.77	1.24	13	20.6%	1.46	0.88	6	11.8%	1.67	1.03	19	16.7%	1.53 0.90
Primary Care	8	7.7%	1.13	0.35	7	11.1%	1.00	0.00	10	19.6%	1.20	0.42	17	14.9%	1.12 0.33
Emergency Room	3	2.9%	0.03	0.17	4	6.3%	0.06	0.25	5	9.8%	0.12	0.38	9	7.9%	0.09 0.31
Re-hospitalization	9	8.7%	0.09	0.28	6	9.5%	0.10	0.30	6	11.8%	0.12	0.33	12	10.5%	0.11 0.31
Social Worker	4	3.8%	1.00	0.00	1	1.6%	3.00	---	2	3.9%	2.50	0.71	3	2.7%	2.67 0.58
Home Nursing Care	104	100.0%	2.65**	0.88	62	100.0%	6.44	6.68	---	---	---	---	62	54.4%	6.44 6.68

* $p < .03$ ** $p < .001$

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 16
USE OF COMPLEMENTARY THERAPIES (CTs)

	Intervention (n=104)		Control A* (n=63)		Control B** (n=51)		Total Controls A&B* (n=114)	
	n	%	n	%	n	%	n	%
Used one or more CTs	50/104	48.1%	41/63	65.1%	26/50	52.0%	67/113	59.3%
Variety of CTs used	13/14	92.9%	11/14	78.6%	12/14	85.7%	12/14	85.7%
	M	SD	M	SD	M	SD	M	SD
Average # of CTs per Participant	0.87	1.15	1.33	1.34	0.96	1.23	1.17	1.30
Frequency of Therapy Use								
	n	%	n	%	n	%	n	%
Special Vitamin Therapy	29	27.9%	29	46.0%	16	31.4%	45	39.5%
Herbal Therapy	12	11.5%	12	19.0%	5	9.8%	17	14.9%
Relaxation Audio Tapes	8	7.7%	8	12.7%	8	15.7%	16	14.0%
Special Cancer Diet	9	8.7%	3	4.8%	7	13.7%	10	8.8%
Guided Imagery	6	5.8%	5	7.9%	2	3.9%	7	13.7%
Therapeutic Massage	6	5.8%	10	15.9%*	2	3.9%	12	10.5%
Spiritual Healing	6	5.8%	8	12.7%	2	3.9%	10	19.6%
Special Cultural Therapies	3	2.9%	0	0.0%	0	0.0%	0	0.0%
Yoga Therapy	3	2.9%	4	6.3%	2	3.9%	6	5.3%
Relaxation Video Tapes	3	2.9%	1	1.6%	1	2.0%	2	1.8%
Music Therapy	3	3.3%	0	0.0%	1	2.0%	1	0.9%
Acupuncture Treatment	1	1.0%	0	0.0%	0	0.0%	0	0.0%
Therapeutic Touch	1	1.0%	2	3.2%	1	2.0%	3	2.6%
Chiropractic Treatment	0	0.0%	2	3.2%	1	2.0%	3	2.6%

* $p < .04$

▲Received nursing care provided by an agency nurse

▲▲Received no nursing care

Table 17

OUT-OF-POCKET EXPENSES FOLLOWING SURGERY

	Intervention (n=104)					Control A' (n=63)					Control B'' (n=51)					Total Controls A & B (n=114)				
	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max				
Complementary Therapies	55	\$26.31	49.98	\$0-262	42	\$32.79	50.75	\$0-255	27	\$20.44	44.24	\$0-226	69	\$27.96	48.36	\$0-255				
Medications	75	\$18.32	29.47	\$2-180	47	\$16.94	28.33	\$1-187	41	\$19.39	32.15	\$1-192	88	\$18.08	30.02	\$1-192				
Special Supplies	51	\$21.49	50.33	\$2-360	25	\$54.24	197.41	\$2-1000	22	\$26.95	34.74	\$3-150	47	\$41.47	145.16	\$2-1000				
Additional Costs	25	\$121.28	204.31	\$3-1000	23	\$109.74	113.23	\$6-375	10	\$274.40	474.41	\$3-1550	33	\$159.64	279.32	\$6-1550				
Total Out-of-Pocket	89	\$180.70	552.95	\$1-5013	55	\$111.69	132.01	\$4-611	47	\$208.34	505.50	\$2-2500	102	\$156.23	357.83	\$2-2500				

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 18

NURSING CONTACTS RELATED TO THE INTERVENTION PROTOCOL

(These data pertain only to women in the intervention group: n=104)

Variable	M	SD	Min-Max
Number of visits per participant	2.65	0.89	1-6
Number of phone contacts per participant	4.69	1.75	2-12
Number of nursing diagnoses (problems) opened per participant	14.34	1.80	5-25
Home visit direct care time per visit (minutes)	61.94	14.50	37.5-105
Home visit record-keeping time per participant (minutes)	42.65	17.53	5-90
Telephone direct care time per contact (minutes)	8.83	4.22	0-20
Telephone coordination of care time with other health providers (minutes)	0.69	2.16	0-12.5

Table 19

MOST FREQUENTLY OCCURRING NURSING DIAGNOSES

(These data pertain only to women in the intervention group: n=104)

Categories	Protocol Diagnoses
1. Pain	1. Pain, acute
2. Fatigue	2. Activity intolerance
3. Constipation	3. Constipation
4. Anxiety	4. Anxiety
5. Quality of life	5. Alteration in quality of life
6. Incision Care	6. Skin integrity/surgery
	7. Knowledge deficit, milk drain
	8. Knowledge deficit, empty drain
	9. Knowledge deficit, record drainage
	10. Knowledge deficit, dressing change
7. Health Education	11. Knowledge deficit, BSE
	12. Knowledge deficit, ROM affected arm
	13. Knowledge deficit, lymphedema prevention
Categories	Additional Diagnoses
1. Incision care	14. Self-care deficit, clogged drainage tube
	15. Self-care deficit, dressing change
	16. Knowledge deficit, seroma signs and symptoms
2. Quality of life	17. Activities of daily living, functional alterations
	18. Emotional alterations
	19. Social/family alterations
	20. Physical, altered
3. Nausea	21. Nausea
4. Depression	22. Depression, side effects
	23. Knowledge deficit, community resources
5. Fatigue	24. Fatigue, acute
6. Fever	25. Fever/hyperthermia

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

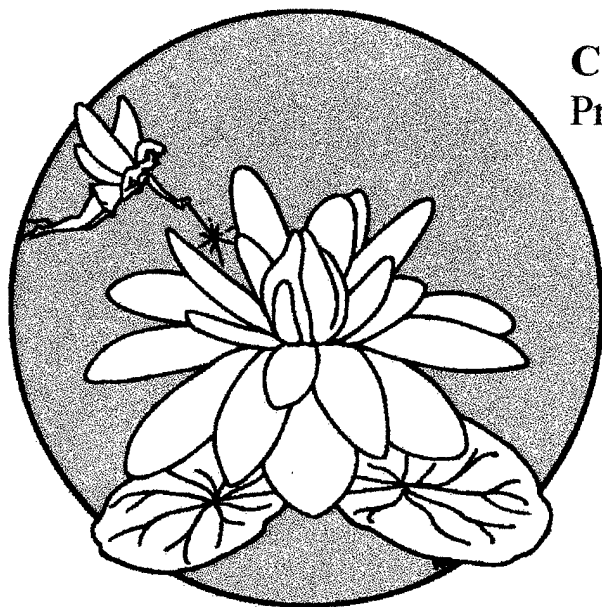
**Appendices for Year Four Annual Report
September 15, 1999 to September 14, 2000**

Funded by: U.S. Army Medical Research
Materiel Command
Department of Defense
Grant # DAMD17-96-1-6325

Principal Investigator:
Gwen Wyatt, PhD, RN
Associate Professor, College of Nursing

Co-principal Investigators:
Barbara Given, PhD, RN, FAAN
Professor, College of Nursing

Charles Given, PhD
Professor, College of Human Medicine



Michigan State University
East Lansing, Michigan 48824

A New Beginning

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

APPENDICES

Publications	Appendix A
Design	Appendix B
Grant Productivity	Appendix C
Grant Abstracts	Appendix D

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

PUBLICATIONS

Appendix A

Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Workgroup of European Nurse Researchers Proceedings Book, 431-437.

P r o c e e d i n g s

Challenges for Nurses

in the 21st Century:

Health Promotion,

Prevention

and Intervention



10th Biennial Conference
May 25-27 2000, Reykjavík, Iceland

**The 10th Biennial Conference of the
Workgroup of European Nurse Researchers
WENR in Iceland
May 25-27, 2000, Reykjavík**

**Hosted by
the Icelandic Nurses' Association**

Organizing Committee

Auðna Ágústsdóttir, Chairperson
Aðalbjörg Finnbogadóttir
Anna Birna Jensdóttir
Elsa Friðfinnsdóttir
Hildur Helgadóttir
Ingibjörg Hjaltadóttir

Scientific Committee

Auðna Ágústsdóttir, Iceland
Yrsa Andersen, Denmark
Karin Axelsson, Sweden
Annemarie Kesselring, Switzerland
Julita Sansoni, Italy
Maria Isabel Soares, Portugal

Scientific Preparation, Iceland

Auðna Ágústsdóttir
Hrafn Óli Sigurðsson

Conference Organiser

Iceland Travel, Conference Department
Lágmúli 4, 108 Reykjavík, Iceland
phone: +354 585 4300 - fax: +354 585 4392
e-mail: congrex@icelandtravel.is

Editor

Aðalbjörg J. Finnbogadóttir

Reykjavík 2000

Prentsmiðjan VIDEY ehf

A NURSING PROTOCOL FOR SUBACUTE RECOVERY FOLLOWING BREAST CANCER SURGERY

Gwen Wyatt, RN, PhD and Kathryn Christensen Beckrow, RN, BSN

INTRODUCTION

Over the past decade in the United States of America (USA), the length of hospital stay following breast cancer surgery has changed dramatically. Since the USA does not have socialized medicine, each insurance company is able to set its own standard of care. As recently as the early 1990s, the majority of patients undergoing a mastectomy were hospitalized for a minimum of five to ten days. Currently, a long stay is considered to be anything over 24 hours.¹ This evolving change in the standard for hospital stay, coupled with the inherent decrease in nursing care, has created much controversy and debate.

A commonly cited advantage of short-stay surgery involves the minimization of nosocomial infection and allowing patients to return home to their normal routines.² In addition, health maintenance organizations (third party insurers) have argued against lengthy hospitalization for breast surgeries such as axillary node dissection, lumpectomy, and mastectomy, stating that physical recovery can occur at home, and that extended stays contribute little to addressing self-image, pain, and disfigurement that patients experience. As a result, surgeons in the USA are required to document that an overnight stay is "medically necessary" in order for patients to obtain insurance coverage. Short-stay and out-patient surgery provides a great deal of economic savings to health plans, estimated at \$1000 to \$2000 saved each day that a patient is not hospitalized.³ It has also been argued that family members can be taught how to care for the surgical site and surgical drain for patients once they return home, and that patients are happier and feel more empowered when they are able to be at home and provide their own care.³

Representing the other side of this argument, many patients and members of the health care community have voiced concern, asserting that money, rather than clinical knowledge, is controlling too much of the health care system in the USA today.⁴ They contend that many disadvantages to short-stay surgery exist, including delays in identifying complications, lack of care in the home for patients who live alone, and the risk that post-operative care instructions will not be followed properly. In addition, it has been argued that the cost of re-admitting a surgical outpatient to the hospital because of post-surgical infection could potentially more than triple the cost from what it would have been if the patient had a longer initial recovery in the hospital without complications.²

LITERATURE REVIEW

The research to date regarding short-stay surgery for breast cancer is limited, with most studies focusing on feasibility. In a study by Bundred, et al.,⁵ a sample of 100 women undergoing mastectomy with axillary dissection or breast conserving surgery, were assessed for the presence of physical and psychological sequelae resulting from early discharge (2 days after surgery). Increased rates of complications were not found in this sample, thus leading the researchers to conclude that the short-stay surgery policy can be recommended if patients have sufficient support at home. Research by Bonnema, et al.,⁶ also assessed the psychosocial and medical effects of early discharge after surgery with a sample of 125 women with breast cancer, comparing patients discharged 4 days after surgery (with the surgical drain still in place), with patients discharged after the drain was removed (\bar{x} =9 days). They found no difference in duration of drainage or incidence of wound complications between groups, and high satisfaction by those who had the shorter stay. This team concluded that opportunities for social support within the family seem to be enhanced by early discharge. In a study of 52 women undergoing modified radical mastectomy, simple mastectomy, lumpectomy with axillary dissection, and other breast procedures, Burke, et al.,⁷ found that most patients had no problems with drain or incision care, and were prepared to leave the hospital on the first post-operative day. They concluded that short-stay surgery was feasible for post-operative patients who receive appropriate educational support in preparation for their return to the home. Finally, a study by Seltzer⁸ of 133 breast cancer patients, found that limited axillary node dissection and partial mastectomy can be performed safely as a same-day procedure. Advantages are that patients do not have to be hospitalized, the surgeon's in-hospital responsibilities and paperwork are reduced, and third-party insurers have reduced costs. From these studies, we can conclude that short-stay surgery appears to be feasible. The question is, however, what physical and psychological cost does this put upon the patient and her family to meet the needs no longer addressed by the health system?

While the majority of the research has focused on length of hospital stay, little has been done to address the needs of women once they return home. Several experts have made the point that women's needs differ, especially in the area of available family and social support.^{4,9} Research by Wang, et al.,¹⁰ found that the major concerns and needs experienced by breast cancer patients deal with health, family, self-esteem, work, finances, future, counseling and support for the family and themselves. While some women receive agency in-home nursing care to address physical health concerns (such as dressing changes, and surgical drain care), many receive no follow-up care to address the many other needs such as protection against the development of lymphedema, anxiety, quality of life issues, and obtaining access to necessary community resources. As a result, they are left to care for themselves or depend on family members to provide physical and emotional support. Although having family or friends at home may be a great comfort to women, there are still several factors that each individual faces after surgery, but which may be outside the realm of family or friendship support. Such factors include psychosocial issues related to the change in body image and anxiety about follow-up adjuvant therapy, physical issues related to post-surgical self-care (e.g., dressing changes and drain care) and prevention of complications (such as lymphedema

or diminished surgical arm range-of-motion), and cost-related issues involving use of health services, purchase of supplies, and other costs not covered by insurance but essential to post-surgical recovery. Therefore, based on these issues, a nursing intervention was developed for testing which addressed the following research question: "Can a focused nursing intervention which targets the needs of women following short-stay breast cancer surgery, improve outcomes such as anxiety, quality of life, and physical healing in a cost effective manner, and ultimately, empower women to be able to care for themselves?" The purpose of this paper is to describe the nursing care protocol that was developed in response to this research question.

DESIGN

A randomized clinical trial, funded by the United States Medical Research and Materiel Command, Department of Defense (DAMD17-96-1-6325), tested the targeted nursing care protocol. The sample included 176 women undergoing short-stay (48 hours or less) surgery for breast cancer. Informed consent was obtained from each participant at intake, in accordance with the institutional review boards where recruitment takes place. All participants were recruited from surgeon offices in the state of Michigan, USA.

Sample

Participants were women age 21 and older, able to speak and write the English language, with a positive diagnosis of breast cancer, and undergoing short-stay surgery (48 hours or less). The surgery types included were mastectomy with axillary lymph node dissection, mastectomy without axillary node dissection, or lumpectomy with axillary node dissection (the majority of women underwent lumpectomy with axillary dissection). Exclusionary criteria included pregnancy, in-situ tumors, immediate reconstructive surgery, pre-surgical chemotherapy or an acute episode of medically diagnosed mental illness at the time of cancer diagnosis. Of the 176 participants, the majority of women were Caucasian, married, had at least some college education, and were employed prior to surgery. The mean age of the sample was 56 years, while the annual household income was \$53,504.

DESCRIPTION OF THE PROTOCOL

Intervention participants received the targeted nursing care protocol in their homes during the first 14 post-operative days, while the **control A** participants received surgeon-ordered agency home nursing care, and the **control B** participants received no post-surgical home nursing care. This report will focus on the intervention protocol.

The intervention protocol consisted of a minimum of 2 home visits and 2 phone calls by a registered nurse during the 2 weeks immediately following surgery. In addition, each patient had 24 hour access to her nurse by pager, in the event that complications

developed. The nurse/patient interactions were designed to facilitate self-care and empowerment, with an effort to minimize dependence upon the nurse. Thus, all patients were taught not only how to care for themselves physically, but how to best be in tune with their emotional health, in an attempt to have the fullest recovery possible (See Table 1 for description of the protocol).

DISCUSSION

As previous research has shown, short-stay surgery for women with breast cancer seems to be a feasible option.⁵⁻⁸ The drawback is that physical and psychological concerns of these women are not necessarily being met in the home, since needs vary widely from person to person.^{4,9-10} Through a nursing-based intervention as described in this report, women can be assured of receiving appropriate educational information as deemed essential by Burke, et al.⁷ In addition, women can receive the support in the home which Bundred, et al.⁵ reported as a critical element to recovery for breast cancer patients.

This protocol represents a very different philosophy than typical agency nursing care. It empowers women to provide self-care for physical and psychological needs; rather than encouraging dependency upon the nurse who is reimbursed per patient visit. It is done in a cost-effective manner by providing a minimum of 2 visits and 2 phone calls and giving patients access to a nurse through the use of a pager in the event that complications develop. It teaches women how to care for their dressing and drain, what to be aware of as possible signs of infection, how to manage symptoms, and how to be active participants in their care. The intervention also addresses anxiety and quality of life issues, teaches coping skills, instructs on the importance of and appropriate techniques for breast self exam, range of motion exercises, and lymphedema awareness, as well as providing community resources which women can access independently.

Preliminary results of this protocol demonstrate that women who receive the in-home nursing intervention are being discharged from the hospital sooner, using fewer health services post-discharge, and receiving less than half the number of nursing visits as compared to controls, yet are achieving comparable or better physical, emotional, and educational outcomes. Based on these findings, we believe that this work could translate into national policy in the USA for discharge planning in terms of length of hospital stay, standard of care for subacute post-surgical needs, and the optimal amount and type of nursing care necessary to achieve favorable outcomes and meet the needs of women following surgical treatment for breast cancer.

REFERENCES

1. Krug, P. (1997). Breast cancer legislation active in several states. AORN Journal, 66(2), 330-333.
2. Advantages and disadvantages of outpatient surgery. (1998). Oncology Nursing Society's 1998 Annual Congress Symposia Highlights, 31.
3. Johannes, L. (1996, Nov. 10). More HMO'S order outpatient mastectomies. Wall Street Journal, B1, B8.
4. Canavan, K. (1997). Nurses fight "drive-through mastectomy" trend. The American Nurse, 29(1), 3,8.
5. Bundred, N., Maguire, P., Reynolds, J., Grimshaw, J., Morris, J., Thomson, L., Bar, L., & Baidam, A. (1998). Randomized controlled trial effects of early discharge after surgery for breast cancer. British Medical Journal, 317(7168): 1275-1279.
6. Bonnema, J., van Wersch, A.M., van Geel, A.N., Pruyn, J.F., Schmitz, P.I., Paul, M.A., & Wiggers, T. (1998). Medical and psychosocial effects of early discharge after surgery for breast cancer: Randomized trial. British Medical Journal, 316(7140), 1267-1271.
7. Burke, C.C., Zabka, C.L., McCarver, K.J., & Singletary, S.E. (1997). Patient satisfaction with 23-hour "short-stay" observation following breast cancer surgery. Oncology Nursing Forum, 24(4), 645-651.
8. Seltzer, M.H. (1995). Partial mastectomy and limited axillary dissection performed as a same day surgical procedure in the treatment of breast cancer. International Surgery, 80(1), 79-81.
9. Wyatt, G.K. & Friedman, L.L. (1998). Physical and psychological outcomes of midlife and older women following surgery and adjuvant therapy for breast cancer. Oncology Nursing Forum, 25(4), 761-768.
10. Wang, X., Cosby, L.G., Harris, M.G., & Liu, T. (1999). Major concerns and needs of breast cancer patients. Cancer Nursing, 22(2), 157-163.

Table 1: INTERVENTION PROTOCOL

<p>Encounter 1 - Telephone Contact 1 (24 hours after discharge)</p>	<ul style="list-style-type: none"> • Nurse establishes therapeutic relationship by asking about the woman's surgery and answering questions. • Emergent complications assessed (pain, nausea, difficulties with the incision or drain). • Woman is reminded of how to contact her nurse via pager, should any problems develop. • Schedule first in-home visit.
<p>Encounter 2 - In Home Visit 1 (1-3 days after discharge)</p>	<ul style="list-style-type: none"> • Nurse re-establishes rapport with woman. • Complete history, assessment of vital signs, vision, hearing, weight, allergies, comorbidities, cancer history, nutrition, and answers questions. • Remove dressing (if present) and assess incision for healing and approximation. • Assess drain, drainage, and output (checking for color, consistency, and amount). • Teach woman assessment of site, drain management, technique for milking the drain, recording of output (color, consistency, and amount), and provide home instruction sheet on these skills. • Assess for presence of seroma and teach woman assessment skills. • Teach woman indicators of infection and provide home instruction sheet. • Assess symptoms and how they disrupt activities of daily living (pain, fatigue, constipation). • Teach correct use of over-the-counter laxative of choice to prevent constipation while on narcotics. • Encourage to move to non-narcotic pain medication as early as possible to prevent constipation. • Assess and address quality of life (physical issues, social and family interactions, emotional concerns, relationship with health care professional, difficulties with activities of daily living). • Teach ways to improve quality of life through expression of feelings, utilization of family/friendship resources, and participating in enjoyable activities. • Assess and address anxiety by teaching anxiety interrupters including looking up, using controlled breathing, lowering shoulders, slowing thoughts, imagining watching situation from distance. • Give resource guide including information on support groups, counseling services, national cancer organizations, and merchants who carry prostheses and wigs.

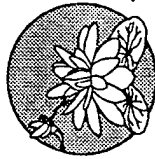
<ul style="list-style-type: none"> • Submit written report to the woman's surgeon reporting on her health status and self-care skills taught.
--

Table 1: INTERVENTION PROTOCOL, continued

Encounter 3 - Telephone Contact 2 (4-7 days after discharge)
<ul style="list-style-type: none"> • Includes all interventions from telephone contact 1. • Schedule second in-home visit.
Encounter 4 - In Home Visit 2 (8-14 days after discharge)
<ul style="list-style-type: none"> • Includes all interventions from in-home visit 1. • Teach techniques for breast self exam recommended by American Cancer Society (emphasize checking tail of spence, nipple area, using uniform motion, covering entire breast tissue, and surgical incision area once healed). • Teach methods for minimizing development of lymphedema (protect skin from burns, cuts, and squeezing pressure). • Teach immediate treatment when breaks in the skin do occur, to elevate the arm if swelling begins, and to contact physician at the first sign of swelling. • Assess for signs of nerve/circulation impairment and fine motor coordination in affected arm. • Assess extent of arm range of motion and teach exercises, recommend gradual increase in activities of daily living, progressing to the Reach to Recovery Organization guidelines to regain full range-of-motion. • Explore additional health services needed and review information on resource guide. • Submit final written report to surgeon with details of health status, areas of teaching covered, notification that nursing care is completed, and that the woman may contact either their office or the primary care physician if future complications or health concerns develop.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

DESIGN
Appendix B



STUDY DESIGN - A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

Pre-test

Self-administered instruments at pre-surgical recruitment

Demographics

- Age
- Weight
- Height
- Race
- Co-morbid
- Allergies

Physical

- Functional status
- Activity level
- ADLs
- ROM

Psychological

- Anxiety
- State
- Trait

Quality of Life

- Fact-B subscales
- Physical well-being
- Social/family well-being
- Relationship with doctor
- Emotional well-being
- Functional well-being
- Additional concerns

Post-Operative

Weeks 1 and 2

Intervention

- Experimental Group
- Nurse phone contact 1
- Nurse in-home visit 1
- Nurse phone contact 2
- Nurse in-home visit 2
- Conventional care

Non-Intervention

- Control A Group
- Agency nursing care
- Conventional care
- Control B Group
- Conventional care

Post-test

Telephone interview at 4 weeks post-surgery

Physical

- Functional status
- Activity level
- ADLs
- ROM
- Physical Symptoms
- Post-surgical self-care
- Preventive self-care education
- Surgical area sensation
- Surgical Drain

Psychological

- State and Trait Anxiety

Quality of Life

- Fact-B subscales
- Physical well-being
- Social/family well-being
- Relationship with doctor
- Emotional well-being
- Functional well-being
- Additional concerns

Costs

- Complementary therapy
- Out-of-pocket for care
- Patient initiated health services
- Employment/financial changes

Chart Audit

4 month follow-up

Post-Protocol Events

- Seroma Formation
- Further Surgeries
- Axillary node dissection
- Lumpectomy
- Wide excision
- Mastectomy
- Double Mastectomy
- Prophylactic Mastectomy
- Other

Follow-up Data

- Cancer Stage
- Body Mass Index

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

GRANT PRODUCTIVITY
Appendix C

*A Subacute Care Intervention
for
Short-Stay Breast Cancer Surgery*

September 15, 1996 to September 14, 2001

Productivity Report

Funded by:

U.S. Army Medical Research
Materiel Command
Department of Defense

Principal Investigator:

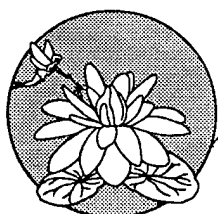
Gwen Wyatt, RN, PhD
Associate Professor, College of Nursing

Co-Principal Investigators:

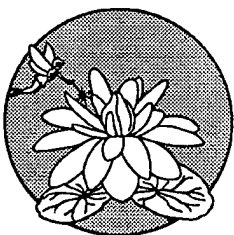
Barbara Given, RN, PhD, FAAN
Professor, College of Nursing
Director of Research, Institute of Managed Care

Charles Given, PhD
Professor, College of Human Medicine
Associate Chair for Research, Department of
Family Practice

*Michigan State University
East Lansing, Michigan 48824*



A New Beginning



Nursing Care for Breast Cancer Staff Productivity Report

Fall 1996 through Fall 2000

PUBLICATIONS

Wyatt, G.K. & Friedman, L.L. (in press). The long-term quality of life (LTQL) instrument for female cancer survivors. In O.L. Strickland and C. DiIorio (Eds.), Measurement of Nursing Outcomes: Focus on the Patient. New York: Springer Publishing.

Wyatt, G.K., Ogle, K., & Given B.A. (in press). Access to hospice: A perspective from the bereaved. Journal of Palliative Medicine.

Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Workgroup of European Nurse Researchers Proceedings Book, 431-437.

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999). Complementary therapy use among older cancer patients. Cancer Practice, 7(3), 136-144.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999). A profile of bereaved caregivers following provision of terminal care. Journal of Palliative Care, 15(1), 13-25.

Wyatt, G.K. & Friedman, L.L. (1998). Physical and psychosocial outcomes of midlife and older women following surgery and adjuvant therapy for breast cancer. Oncology Nursing Forum, 25(4), 761-768.

Wyatt, G.K., Kurtz, M.E., Friedman, L.L., Given, B.A., & Given, C.W. (1997). Preliminary testing of the Long-Term Quality of Life (LTQL) Instrument for female cancer survivors. Journal of Nursing Measurement, 4(2), 153-170.

Wyatt, G.K. & Friedman, L.L. (1996). Development and testing of a quality of life model for long-term female cancer patients. Quality of Life Research, 5, 387-394.

Wyatt, G.K. & Friedman, L.L. (1996). Long-Term female cancer survivors: Quality of life issues and clinical implications. Cancer Nursing, 19(1), 1-7.

REVIEWER

Wyatt, G.K. (2000). Reviewer for Poynter Center Applicants, Indiana University, Bloomington, IN.

Wyatt, G.K. (1999-2000). Reviewer for the Journal of Palliative Care, Montreal, Canada.

Wyatt, G.K. (1998-2000). Reviewer for Research in Nursing and Health. New York, NY: John Wiley and Sons, Inc.

Wyatt, G.K. (1997-1998). Reviewer for College of Nursing Research Initiation Grants (CONRIG), Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996-1999). Reviewer for Sigma Theta Tau Alpha Psi Chapter, College of Nursing, Michigan State University, East Lansing, MI.

PRESENTATIONS

Wyatt, G.K. & Beckrow, K.C. (2000, May 25). A nursing protocol for subacute recovery following breast cancer surgery. Paper presentation for the 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland.

Wyatt, G.K. (2000, May 10). Therapeutic touch in healthcare. Invited speaker for the Center for Health, Humanities, and Well-Being program for hospital associates, Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2000, April 13). A nursing and yoga intervention for women with breast cancer. Presentation at Surgical Grand Rounds, Sparrow Health System. Continuing medical education units provided to attendees.

Wyatt, G.K., Given, C.W., Given, B.A., & Friedman, L.L. (2000, April 3). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the Midwest Nursing Research Society, 24th Annual Research Conference, Dearborn, MI.

Beckrow, K.C., Wyatt, G.K., Friedman, L.L., Given, B.A., & Given, C.W. (2000, March 29). Complementary therapy use among older cancer patients. Poster session presented at the Greater Lansing Nursing Research Consortium's 8th Capital Area Research Day, Lansing, MI.

Wyatt, G.K., Given, C.W., Given, B.A., Kozachik, S. (2000, March 29). Complementary therapy for chemotherapy patients and their family caregivers. Poster session presented the Greater Lansing Nursing Research Consortium's 8th Capital Area Research Day, Lansing, MI.

Wyatt, G.K. (2000, March 29). Complementary therapies in research practice. Invited speaker at the Greater Lansing Research Consortium's Annual Capital Area Research Day, Lansing, MI.

Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November 5). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. Poster session presented at the First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI.

Beckrow, K.C., Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, October 19). Complementary therapy use among older cancer patients. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.

Smania, M., Wyatt, G.K., Given, C.W., & Given, B.A. (1999, October 19). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.

Beckrow, K.C., Wyatt G.K., Friedman, L.L., Given, C.W. & Given, B.A. (1999, May 13). Complementary therapy use among older cancer patients. Paper presented at the 22nd Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Rovoll, M.D. & Wyatt, G.K. (1999, May 13). The challenges of quality assurance in data entry. Paper presented at the 22nd Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Beckrow, K.C., Wyatt, G.K., Given, C.W., & Given, B.A. (1999, April 20). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the Seventh Annual Greater Lansing Nursing Research Day, Ingham Regional Medical Center, Lansing, MI.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, April 20). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the Seventh Annual Greater Lansing Nursing Research Day, Ingham Regional Medical Center, Lansing, MI.

Wyatt, G.K. (1999, March 10). Guided imagery application in health care. Invited speaker, Center for Health, Humanities, and Well-Being Seminar Series, Sparrow Health System, Lansing, MI.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, February 18-20). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the 11th MASCC International Symposium, Supportive Care in Cancer, Nice, France.

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, February 20). Complementary therapy use among older cancer patients. Paper presented at the 11th MASCC International Symposium, Supportive Care in Cancer, Nice, France.

Friedman, L.L. & Wyatt, G.K. (1999, February 18-20). Physical and psychosocial outcomes following breast cancer surgery: Implications for supportive care. Poster session presented at the 11th MASCC International Symposium, Supportive Care in Cancer, Nice, France.

Wyatt, G.K. (1998, November 20). Nurse sensitive outcomes for the short-stay breast cancer patient. Paper presented at the Oncology Nursing Society's State-of-the-Knowledge Conference on Nurse Sensitive Outcomes, Pittsburgh, PA.

Wyatt, G.K. (1998, November 17). Therapeutic touch: Evidence and practice. Invited speaker, Michigan Complementary and Alternative Research Center Seminar, School of Medicine, University of Michigan, Ann Arbor, MI.

Wyatt, G.K. & Beckrow, K.C. (1998, July and August). Organizers for the 1998 Summer Research Series, with presentations by Cathy Bradley, PhD, MPA, on health costs, Frederick Tims, PhD, RMT-BC, on music therapy, Daniel Murman, MD, MS, on impaired cognition in cancer patients, Michigan State University, East Lansing, MI.

Wyatt, G.K., Beckrow, K.C., & Bloomfield, M. (1998, June 16). Breast cancer awareness. Paper presented at the Nursing Continuing Education Summer Tuesday Evening Series: Women's Health Issues, Michigan State University, East Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May 7-10). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Poster session presented at the Oncology Nursing Society's 23rd Annual Congress — On Track to a Changing World, San Francisco, CA.

Bloomfield, M. & Wyatt, G.K. (1998, April 30). Post-operative seroma formation following breast cancer surgery. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Beckrow, K.C. & Wyatt, G.K. (1998, April 30). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Bloomfield, M. & Wyatt, G.K. (1998, April 29). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Greater Lansing Nursing Research Consortium, Nursing Research Day, Lansing, MI.

Sprague, J. & Wyatt, G.K. (1998, April 27). Bridging the gap between nursing outcomes and the research process. Poster session presented at the Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, April 27). UROP mentor experience. Invited speaker, Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.

Bloomfield, M. & Wyatt, G.K. (1998, April 3-4). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Graduate School and Council of Graduate Students (COGS), Research Recognition Day, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, February 17). Nursing care for breast cancer project. Invited speaker, College of Nursing Research Center Seminar Series, Michigan State University, East Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1997, October 31-November 4). A subacute care intervention for short-stay breast cancer surgery. Poster session presented at the Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Report of DoD Progress, Washington, D.C.

Wyatt, G.K. (1997, October 21). Breast cancer: Post-surgical care. Invited speaker, American Cancer Society's 30th Anniversary Great Lakes Cancer Nursing Conference, Novi, MI.

Wyatt, G.K., Bloomfield, M. & Beckrow, K.C. (1997, June and July). Organizers for the 1997 Summer Research Series, with presentations by Given, B., Pathak, D., Neumark, D., and Siegl, E.J., Michigan State University, East Lansing, MI.

Wyatt, G. (1997, May 3). Preliminary testing of a Long-Term Quality of Life Instrument. Poster session presented at the Oncology Nursing Society Congress, New Orleans, LA.

Wyatt, G.K. (1997, January). Physical and psychosocial needs of midlife and older women following surgery and adjuvant therapy for breast cancer. Poster session presented at the Fourth National Conference on Cancer Nursing Research, Panama City, FL.

Wyatt, G.K. (1996, November). New DOD funding for breast cancer transition care research. Invited speaker, College of Nursing Research Center Seminar Series, Michigan State University, East Lansing, MI.

ABSTRACTS SUBMITTED

Wyatt, G.K., Given, C.W., & Given, B.A. (2000, May). Complementary therapy for chemotherapy patients and their family caregivers. Submitted for poster presentation to the Great Lakes Cancer Nursing Conference to be held October 17-18, 2000 in Novi, Michigan.

ABSTRACTS ACCEPTED

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, November). Complementary therapy use among older cancer patients. Accepted for poster presentation at the American Nurses' Association, 2000 Biennial Conference & Exposition to be held in Indianapolis, IN, March 31-April 3, 2000.

ABSTRACTS PUBLISHED

Wyatt, G.K., Given, B., & Given, C.W. (2000, June). In-home nursing care for women following breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope. Proceedings Book, 1, (342).

Wyatt, G.K., Given, C.W., & Given, B.A. (2000, May). A nursing protocol for subacute recovery following breast cancer surgery. The 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland. Book of Abstracts, (42).

Wyatt, G.K., Given, C.W., Given, B.A., & Friedman, L.L. (2000, April). A profile of bereaved caregivers following provision of terminal care. The Midwest Nursing Research Society, 24th Annual Research Conference, Dearborn, MI. Proceedings Book, (162).

Beckrow, K.C., Wyatt, G.K., Friedman, L.L., Given, B.A., & Given, C.W. (2000, March 29). Complementary therapy use among older cancer patients. The Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI. Proceedings Book.

Wyatt, G.K., Given, C.W., Given, B.A., Kozachik, S. (2000, March 29). Complementary therapy for chemotherapy patients and their family caregivers. The Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI. Proceedings Book.

Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI. Proceedings Book.

Beckrow, K.C., Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, October). Complementary therapy use among older cancer patients. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (38).

Smania, M., Wyatt, G.K., Given, C.W., & Given, B.A. (1999, October). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (47).

Beckrow, K.C., Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, May). Complementary therapy use among older cancer patients. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (8).

Rovoll, M.D. & Wyatt, G.K. (1999, May). The challenges of quality assurance in data entry. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (8).

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, April). Complementary therapy use among older cancer patients. Midwest Nursing Research Society, 23rd Annual Research Conference. Proceedings Book.

Wyatt, G.K. & Given, B.A. (1999, February). Recommendations for pro-active hospice education: A perspective from the bereaved. Oncology Nursing Society, the American Cancer Society, and the Association of Pediatric Oncology Nurses, 5th National Conference on Cancer Nursing Research. Syllabus and Conference Guide, (211).

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, February). A profile of bereaved caregivers following provision of terminal care. 11th MASCC International Symposium, Supportive Care in Cancer. Supportive Care in Cancer Program, Talk Summaries, and Abstract Book, (185).

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, February). Complementary therapy use among older cancer patients. 11th MASCC International Symposium, Supportive Care in Cancer. Supportive Care in Cancer Program, Talk Summaries, and Abstract Book, (153).

Friedman, L.L. & Wyatt, G.K. (1999, February). Physical and psychosocial outcomes following breast cancer surgery: Implications for supportive care. 11th MASCC International Symposium, Supportive Care in Cancer. Supportive Care in Cancer Program, Talk Summaries, and Abstract Book, (186).

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, November). Nurse-sensitive outcomes for the short-stay breast cancer patient. Oncology Nursing Society, State-of-the Knowledge Conference on Nurse-Sensitive Outcomes. Proceedings Book, (35).

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Oncology Nursing Forum, 25(2), 347.

Bloomfield, M. & Wyatt, G.K. (1998, April). Post-operative seroma formation following breast cancer surgery. Michigan State University Graduate School and Council of Graduate Students (COGS), Research Recognition Day. Proceedings Book.

Bloomfield, M. & Wyatt, G.K. (1998, April). Seroma formation following breast cancer surgery. Greater Lansing Nursing Research Consortium, Nursing Research Day. Proceedings Book.

Bloomfield, M. & Wyatt, G.K. (1998, April). Post-operative seroma formation following breast cancer surgery. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (23).

Beckrow, K.C. & Wyatt, G.K. (1998, April). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (23).

Wyatt, G.K. (1997). Preliminary testing of the Long-Term Quality of Life (LTQL) Instrument for female cancer survivors. Oncology Nursing Forum, 24(2), 311.

Wyatt, G.K. (1997). A subacute care intervention for short-stay breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Reporting of DOD Progress. Proceedings Book, 3, (1033).

Wyatt, G.K. (1997). Breast cancer: Post-surgical care. American Cancer Society, 30th Anniversary Great Lakes Cancer Nursing Conference. Proceedings Book, (22).

Wyatt, G.K. (1997). Physical and psychosocial needs of midlife and older women following surgery and adjuvant therapy for breast cancer. The American Cancer Society, Fourth National Conference on Cancer Nursing Research. Abstract Book, (90).

Wyatt, G.K. (1996). Quality of life of female cancer survivors. Supportive Care in Cancer, 4(3), 232.

Wyatt, G.K. (1996). Models for assessing quality of life among female cancer survivors. Michigan Family Practice Research Day, Michigan State University. Proceedings Book.

GRANT FUNDING

Wyatt, G.K. & Collins, C. (2/1/00 - 1/31/01). Yoga for Breast Cancer. Pilot funds, Provost Office, Michigan State University. (1 year budget \$24,000). Funded.

Gift, A. & Given, B.A. (10/1/99 to 9/30/02). End of Life Care. Competitive Strategic Partnership Grants, Michigan State University. (Wyatt, G. K. collaborator). (3 year budget, \$500,000). Funded.

Paneth, N. (6/1/99 to 5/30/04). Training Clinical Researchers for Community Settings. National Institutes of Health, K-01 grant. (Wyatt, G.K. Mentor in clinical research). (5 year budget, \$200,000/year). Funded.

Given, C.W., Wyatt, G.K., & Given, B.A. (7/1/98-6/1/00). A Complementary Therapy Intervention for Supportive Care of Cancer Patients. Collaborative partnership between West Michigan Cancer Center, Michigan State University, and the Mary Margaret Walther Program (2 year budget \$297,293). Funded.

Wyatt, G.K. (1/1/98-6/1/98). Research Support. Funded 1/1/98 by the Office of the Provost, Michigan State University (Budget, \$2,100). Funded.

Wyatt, G.K. (Principal Investigator), Given, C.W., & Given, B.A. (Co-principal Investigators). (9/15/96-9/14/00). A Subacute Care Intervention for Short-Stay Breast Cancer Surgery. Department of Defense, grant #DAMD17-96-1-6325 (4 year budget \$799,558). Funded.

GRANT REPORTS

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1999, October). Report of 3rd year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery". Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1998, October). Report of 2nd year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery". Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1997, September). Report of 1st year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery". Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

PROFESSIONAL PRESENTATIONS ATTENDED BY STAFF

Manfred Stommel, PhD, Michigan State University, College of Nursing (1998, June 15). Data management. Patenge Room, East Fee Hall, Michigan State University, East Lansing, MI.

Rachel Remen, MD, University of California - San Francisco, School of Medicine (1998, April 21). In the service of life: Finding meaning and mystery in the practice of health care. Kellogg Center, Michigan State University, East Lansing, MI.

Steven Keller, PhD, University of New Jersey, School of Medicine (1998, March). The immune system: Minding the body and embodying the mind. Marriott, East Lansing, MI.

GRANT DEVELOPMENT MEETINGS

Wyatt, G.K. (1998, October 12). Attended the Walther Cancer Institute Annual Program, Indiana University, Indianapolis, IN.

STAFF AWARDS

Bloomfield, M. (1998, Spring). Awarded the Janice and Alton Granger Endowed Student Scholarship for graduate studies at Michigan State University, College of Nursing, East Lansing, MI.

MEDIA COVERAGE AND PRESS RELEASES

Wyatt, G.K. (1999, November 15). Research on the Rise. Article by Elizabeth VandenBoom in "The State News," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Collins, C. (1999, November 10). A Yoga Program for Women following Breast Cancer Surgery. Television interview with Adella Uchida on the "Evening News," WILX, Channel 10, Lansing, MI. (Aired November 10, 1999.)

Wyatt, G.K. (1999, October 22). Research at Michigan State University. Radio interview with Jonathan Brunt on "State News Live," Impact Exposure, WDBN, 89 FM, Michigan State University, East Lansing, MI. (Aired on October 22.)

Wyatt, G.K. & Rovoll, M.D. (1998, November 30 & December 1). AIDS Awareness Day. Participated in ribbon tying ceremony to commemorate World AIDS Day, Channel 6 News, Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, Fall). Care for the Caregivers. Article in Michigan State University newsletter, "Research News," East Lansing, MI.

Wyatt, G.K. (1998, August). Short-Stay Mastectomy Patients Don't Go Home Alone. Article in Michigan State University newsletter, "Research News," East Lansing, MI.

Wyatt, G.K., Given, B.A., Given, C.W., & Pathak, D. (1998, June). Hospital to Home. Nursing Care for Breast Cancer Study featured on the Science Coalition Web site, "MSU Research: Discovering a World of Promise," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Sprague, J. (1998, June). McNair/SROP Scholars. Publication highlighting the experiences of the Undergraduate and Scholars Research Programs. Offered through Michigan State University, Office of Supportive Services, East Lansing, MI.

Wyatt, G.K. (1998, May). In Support of Therapeutic Touch (T.T.): A Rebuttal to the Article in the Journal of the American Medical Association (JAMA) that denounced T.T. Radio interview with Dennis Krolick for MSU News Hotline (Audio news feed-line/sound bites for 24 hour radio service. Available for broadcast by any radio station in U.S. or Canada). Contact number: 1-800-321-6397.

Wyatt, G.K. (1998, Spring). Short-Stay Mastectomy Patients Don't Go Home Alone. Article in Michigan State University newsletter, "MSU Nursing," East Lansing, MI.

Wyatt, G.K. (1997, December 10). Short-Stay Mastectomy Patients Don't Go Home Alone. Press interview for news release through the Office of the Vice President for Research and Graduate Studies, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, November). Breast Cancer Source Guide. Contributor to media release. Contact person: Tom Oswald, Media Communications Department, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, October 28). Breast Cancer Awareness. Television interview with Elizabeth Wooly on "Meridian Magazine," Channel 21, HOM-TV, Okemos Cable Television, Okemos, MI. (aired November 24 - December 7, 1997).

Wyatt, G.K. (1997, October 1). MSU Tip Sheet. Contributor to media release. Contact person: Russ White, Media Communication Department, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, July 17). Nursing Care Following Short-Stay Breast Cancer Surgery. Radio interview with D. Krolick, Broadcast/Photo Division of University Relations, Michigan State University, for National 24 Hour Radio Information Hotline.

Wyatt, G.K. & Bloomfield, M. (1997, April 11). Breast Cancer Surgery. Television interview for WELG, Channel 22 Cable Television, East Lansing, MI. (Aired twice a day April 14 through April 20, 1997).

Wyatt, G.K. (1997, Spring/Summer). Recent publications (4) cited in the Cancer Center at Michigan State University Newsletter, East Lansing, MI.

Wyatt, G.K. (1997, March 25). Mammograms Urged at Age 40. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, March 10). Michigan State University Study to Help Women Diagnosed with Breast Cancer. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, February 18). Longer Hospital Stays Not Always the Answer. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996, Fall). Investigator Focus. Feature article in Cancer Center at Michigan State University Newsletter, Michigan State University, East Lansing, MI.

POLICY CONTACTS AND INVOLVEMENT

Wyatt, G.K., Beckrow, K.C., & Bloomfield, M. (1998, February). Advanced Practice Nurse (APN) Prescriptive Authority and Senate Bill 104. Letter submitted to Senator Dianne Byrum requesting her support of SB 104, East Lansing, MI.

COMMUNITY SERVICE

Wyatt, G.K. & Collins, C. (1999-2000). Ongoing eight week yoga education class for women following breast cancer surgery. Conducted at Sparrow Hospital, Lansing, MI.

Wyatt, G.K. (1999, November, 2). Mentor for Yayoi Yagi, visiting professor from the University of Shiga Prefecture, Japan. The objective of the experience was to provide an overview of nursing-based cancer research in the United States.

Wyatt, G.K. (1999, October 16). American Cancer Society, Making Strides against Breast Cancer, Lansing, MI.

LAY PRESENTATIONS AND ARTICLES

Wyatt, G.K. (2000, August). Complementary Therapies in Today's Health Care. Invited speaker for the Metaphysical Church of Christ, Lansing, MI.

Wyatt, G.K. (2000, March 26). Complementary Therapies in Health Care. Invited speaker for the Theosophical Society of America - The Lansing Study Center.

Wyatt, G.K. (1996, November 19). The Breast Cancer Experience. Presentation for the Unitarian Universalist Church Women's Group, East Lansing, MI.

Wyatt, G.K. (1996, October). Sigma Theta Tau Alpha Psi Chapter Anniversary. Poster for the College of Nursing Homecoming Celebration, East Lansing, MI.

STUDENT MENTOR

Wyatt, G.K. (2000). Mentor for Ami Zimqualla-Cook, Administrative Fellow, Sparrow Health System. The objective of this project was to survey Sparrow associates on interest, use, and knowledge of complementary therapies, analyze data, and present a report to Sparrow administration.

Wyatt, G.K. (2000, May). Mentor for visiting nursing students, Bronwyn Tunnage and Katherine Mardle, from the Nightingale Institute, King's College, London, England. The objective of the experience was to provide an opportunity to learn about breast cancer care and research in the United States.

Wyatt, G.K. (1999, November). Mentor for visiting graduate student, Sylvia Krumm, from Albert-Ludwigs University, Freiburg, Germany. The objective of the experience was to provide an understanding of the nursing research process.

Wyatt, G.K. (1998, January). Mentor for East Lansing High School students. The objective of the experience was to provide students with an opportunity to see what a professional career in nursing research involves.

Wyatt, G.K., Bloomfield, M., & Rovoll, M.D. (1998, January 8). Health Professions Experience. Study staff provided a required experience for East Lansing High School chemistry class students in a health profession environment. Students spent an afternoon learning about the profession of nursing, breast cancer, and the goals of the Nursing Care for Breast Cancer study.

Wyatt, G.K. (1997-1998). Sponsored freshman student, Jill Sprague, from the Undergraduate Research Opportunity Program (UROP). The objective of the experience was to help the student develop a basic understanding and appreciation for research.

Wyatt, G.K. (1998, February). Mentor for nursing students from the Florence Nightingale Institute during their visit to the MSU College of Nursing. The objective of the experience was to provide the students with a brief overview of breast cancer nursing research in the United States.

Wyatt, G.K. (1996-Present). Mentor for graduate students working on grant. The objective of the experience is to provide opportunities to present research at professional conferences, develop writing skills by participating in manuscript development, and provide guidance in students' pursuit of research/professional careers.

Wyatt, G.K. (1996-Present). Mentor for undergraduate students working on grant. The objective of the experience is to provide opportunities to be involved in the research process and encourage professional development.

DISSERTATION AND THESIS

Bloomfield, M. (1999). The effects of early versus delayed exercise on seroma formation and range of motion recovery in short-stay breast cancer surgery patients.

INTERNAL PUBLICATIONS

Quality Assurance Manual	July 1997
Nursing Guide to Paradox Computer Program	June 1997
Patient Charting Forms	June 1997
Recruiter Manual, Pontiac site	May 1997
Interview Manual	March 1997
Nurse Intervener Manual	February 1997
Recruiter Manual, Lansing site	January 1997

WEB SITE DEVELOPMENT

Wyatt, C., Beckrow, K.C., & Wyatt, G.K. (1998, May). Nursing Care for Breast Cancer Web Site Development. Site gives an overview of study including purpose and aims, study design, nursing protocol, instruments used, funding source, study members, participating surgeons, bibliography of study related articles, and breast cancer resources. (www.msu.edu/~nurse/bc)

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

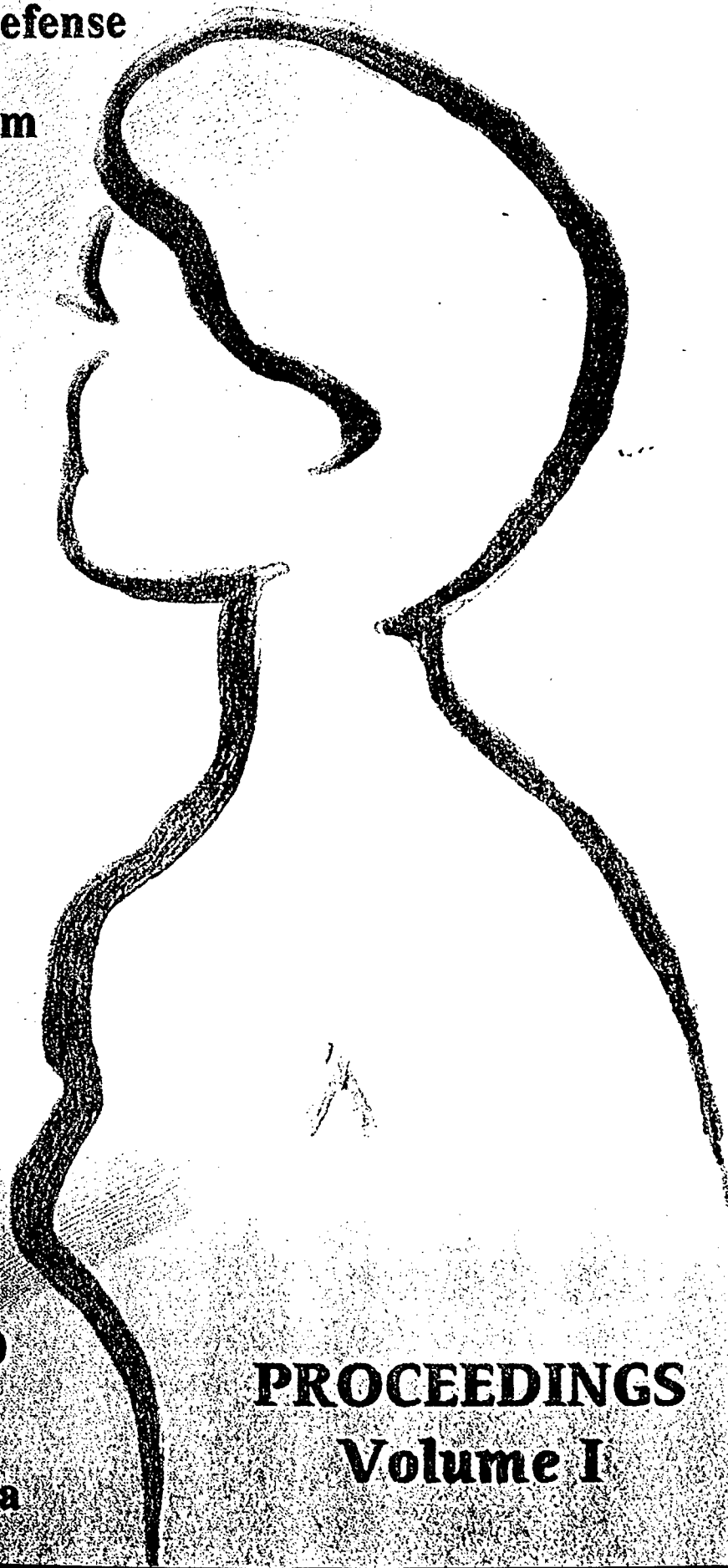
GRANT ABSTRACTS

Appendix D

1. Wyatt, G.K., Given, B., & Given, C.W. (2000, June). In-home nursing care for women following breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope. Proceedings Book, 1, (342).
2. Wyatt, G.K., Given, C.W., & Given, B.A. (2000, May). A nursing protocol for subacute recovery following breast cancer surgery. The 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland. Book of Abstracts, (42).
3. Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI. Proceedings Book.
4. Smania, M., Wyatt, G.K., Given, C.W., & Given, B.A. (1999, October). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (47).

Era of Hope

**Department of Defense
Breast Cancer
Research Program
Meeting**



**June 8-11, 2000
Hilton Atlanta
and Towers
Atlanta, Georgia**

**PROCEEDINGS
Volume I**

IN-HOME NURSING CARE FOR WOMEN FOLLOWING BREAST CANCER SURGERY

Gwen Wyatt, RN, PhD, Barbara Given, RN, PhD, FAAN
and Charles W. Given, PhD

College of Nursing, Michigan State University,
East Lansing, MI 48824-1313

Email: gwyatt@pilot.msu.edu

The purpose of this study is to add to the scientific basis for providing subacute care in the home, by testing the effects of a post-operative nursing intervention designed to facilitate quality of life and physical/psychological well-being after diagnosis and short-stay surgery (48 hours or less) for breast cancer. A randomized clinical trial with repeated measures is examining the effects of the intervention. The **intervention** participants (n=100) receive the targeted subacute care protocol in the home from a study nurse within the first 14 post-operative days, **control A** participants (n=50) receive surgeon-ordered agency home nursing care, and the **control B** participants (n=50) receive no post-surgical nursing care.

We hypothesize that, compared to the control participants, recipients of the intervention will report higher quality of life, improved surgical recovery and self-care knowledge, higher physical functioning, lower anxiety levels, fewer physical symptoms, less frequent use of health services, and lower out-of-pocket health care expenses.

Trends to date indicate that the intervention women are being discharged sooner, using fewer health services post-discharge, and receiving less than half the number of nurse visits, when compared to controls, and yet are achieving comparable or better physical, emotional, and financial outcomes. Such findings can contribute to policy on these care and cost issues.

The U.S. Army Medical Research and Materiel Command under DAMD17-96-1-6325 supported this work.

F i n a l P r o g r a m m e
B o o k o f A b s t r a c t s

Challenges for Nurses

in the 21st Century:

Health Promotion,

Prevention

and Intervention



10th Biennial Conference
May 25-27 2000, Reykjavík, Iceland

**A Nursing Protocol for Subacute Recovery following
Breast Cancer Surgery**

Dr. Gwen Wyatt, Dr. Charles Given, Dr. Barbara Given,
Michigan State University, East Lansing, MI, USA

Problem Statement: Due to the changes in health care policy in the U.S.A., women undergoing treatment for breast cancer are commonly discharged from the hospital within hours of surgery, thus not receiving the nursing care and education that had previously been provided with a longer hospitalization.

Purpose: We are currently testing a nursing protocol which provides subacute care in the home, which is designed to facilitate quality of life, physical, and psychological well-being following surgery for breast cancer.

Methods: A randomized clinical trial with repeated measures is examining the effects of the intervention which is funded by the Department of Defense (DAMD17-96-1-6325).

Sample: All participants are adult women diagnosed with breast cancer. **Intervention** participants (n=100) receive the subacute care protocol in the home from a study nurse during the first 14 post-operative days, **control A** participants (n=50) receive surgeon-ordered agency home nursing care, and the **control B** participants (n=50) receive no post-surgical nursing care.

Instruments: We are measuring quality of life (FACT-B), surgical recovery and self-care knowledge, physical functioning (SF-36), anxiety (Spielberger State), symptoms (Symptom Inventory), use of health services, and out-of-pocket health costs.

Results: Trends to date (n=176) indicate that the intervention women are being discharged sooner, using fewer health services post-discharge, and receiving less than half the number of nurse visits, when compared to the control groups (A and B), and yet are achieving comparable or better physical, emotional, and financial outcomes.

Conclusions: Such findings can contribute to policy on standards for nursing care and related cost issues.

Strong Partnerships, Healthy Communities: Developing Nurse Managed Primary Care Centers

ABSTRACT

A Conceptual Model for an In-Home Nursing Intervention Following Short-Stay Surgery for Breast Cancer

Gwen K. Wyatt, RN, PhD, Charles W. Given, PhD, and Barbara A. Given, RN, PhD, FAAN,
Michigan State University College of Nursing

With the early discharge trend for breast cancer surgery, women are often sent home from the hospital within hours rather than days. Many are left to care for themselves or depend on family members to provide care and support, and most have no prior experience with post-surgical needs. This lack of knowledge and experience often leads to feelings of anxiety, the development of physical complications, and greater out-of-pocket costs related to care. Through funding from the federal government, a randomized clinical trial entitled "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery" (DAMD17-96-1-6325) is testing a conceptual nursing care model that targets key outcome variables associated with short-stay surgery including emotional well-being, physical recovery, and out-of-pocket costs. Data are collected at baseline, four weeks post-surgery, and four months post-surgery through the use of self-administered questionnaires, telephone interviews, and chart audits. The study sample includes women 21 years of age and older with a positive diagnosis of breast cancer who are undergoing short-stay surgery (48 hours or less), including lumpectomy with axillary node dissection, mastectomy with node dissection, or mastectomy without node dissection. Preliminary results, which are based on a sample of 176 breast cancer patients, show that women who receive the targeted in-home intervention experience decreased anxiety, enhanced emotional quality of life, and considerable cost savings associated with care.



Hope. Progress. Answers.

**American Cancer Society
Great Lakes Division, Inc.
Nursing Committee Presents the:**

32nd Annual Great Lakes Cancer Nursing Conference

**October 19-20, 1999
Novi Hilton Hotel, Novi, Michigan**

Cover by Nan Snow



OCTOBER 19 - 20, 1999

TITLE: A Conceptual Model for an In-Home Nursing Intervention Following Short-Stay Surgery for Breast Cancer

FACULTY: Mary Smania, RN, BSN
Research Assistant
Nursing Care for Breast Cancer
Michigan State University
East Lansing, Michigan

Gwen Wyatt, RN, PhD
Barbara Given, RN, PhD, FAAN
Charles Given, PhD

POSTER: With the current early discharge trend for breast cancer surgery, women are often sent home from the hospital within hours rather than days. Many are left to care for themselves or depend on family members to provide support, and most have no prior experience with post-surgical care. This lack of knowledge and experience often leads to feelings of anxiety, the development of physical complications, and greater out-of-pocket costs related to care. Through funding from the federal government, a randomized clinical trial entitled "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery" (DAMD17-96-1-6325) is testing a conceptual nursing care model that targets key outcome variables associated with short-stay surgery including emotional well-being, physical recovery, and out-of-pocket costs. Data are collected at baseline, four weeks post-surgery, and four months post-surgery through the use of self-administered questionnaires, telephone interviews, and chart audits. The study sample includes women 21 years of age or older with a positive diagnosis of breast cancer who are undergoing short-stay surgery (48 hours or less), including lumpectomy with axillary node dissection, mastectomy with node dissection, or mastectomy without node dissection. Preliminary results, which are based on a sample of 175 breast cancer patients, show that women who receive the targeted in-home intervention experience decreased anxiety, enhanced emotional quality of life, and considerable cost savings for care.